

WORLD PERSPECTIVE IN PHILOSOPHY AND RELIGION

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REFLECTIONS ON

GEORGE BERKELEY'S PHILOSOPHY

World Perspective in Philosophy and Religion aims at a clearer understanding and fresh scrutiny of the significant aspects and issues of Philosophy, Religion and Culture by master minds in the light of contemporary debate and their varied influences in the shaping of mankind. Each author deals with the subject of his choice and develops his idea with sound philosophical reasoning. Conscious and reflective thoughts offer new vistas to envisage what is most exalted in man and help widen our new horizons.

REFLECTIONS ON GEORGE BERKELEY'S PHILOSOPHY

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PREFACE

Reflections on George Berkeley's Philosophy consists of 24 articles, published in the standard journals of this Country and abroad.

These articles reveal Berkeley's important epistemological doctrine namely the "visibles" and the "tangibles" are two different and distinct objects but are related through habit or custom.

Berkeley established the above doctrine on experimental grounds.

These articles have been worked out after going through Berkeley's published and unpublished *Works*.

Berkeley's *Works* were first published by Joseph Stock 2-3 Vols. 1784-1837 Dublin and London.

Berkeley's *Works* were later on published by G.N. Wright 2 Vols. 1843 London.

Berkeley's *Works* were later on published by A.C. Fraser in 4 Vols. 1871 Oxford; again re-printed in 4 Vols. 1901 Oxford.

Berkeley's *Works* were published by G. Sampson in 3 Vols. 1897-8 London.

Berkeley's *Works* were published by A.A. Luce and T.E. Jessop in 9 Vols. 1944-57 Edinburgh.

D.M. Armstrong, a noted Australian philosopher, published *Berkeley's Theory of Vision* in 1960, Melbourne University Press, Australia.

Colin Murray Turbayne published *Berkeley's Works on Vision* in 1963 New York.

Professor A.D. Ritchie published *George Berkeley's: A Reappraisal* in 1967, Manchester University Press, Manchester.

The writer is, therefore, thankful to the above authors on Berkeley for the preparation of the articles, which reveal the important Berkeleian truth namely "although the objects of sight and touch are heterogeneous, they are corroborative and co-operative because of custom or habit".

December, 1983

L. P. N. Sinha

ABBREVIATED REFERENCES

1. George Berkeley—*Philosophical Commentaries* - P.C.
(Original Note Book B and Note Book
A of Berkeley—A.A. Luce and T.E.
Jessop Works, 1944).
2. ————*An Essay towards a New Theory of* - NTV
Vision or Essay on Vision or Essay (1709)
3. ————*The Principles of Human Knowledge* - Principles
(1710).
4. ————*Three Dialogues between Hylas and* - Dialogues
Philonous (1713)
5. ————*De Motu* (1721) - DM
6. ————*Alciphron or the Minute Philosopher* - Alciphron
with the New Theory of Vision (1732)
7. ————*The Theory of Vision Vindicated and* - TVV
Explained (1733)

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Introduction to George Berkeley's Chief Works

I. Note Book B and Note Book A

When George Berkeley was hardly 22 or 23 years old he wrote nearly nine hundred¹ short philosophical notes (1707-8).

These notes named as *Note Book A* and *Note Book B* and bound in wrong order² as *Note Book B* and *Note Book A* are still preserved as Berkeley's rare manuscripts in the British Museum, London.

A.C. Fraser first published these *notes* of Berkeley (in wrong order) under the mis-named title *Commonplace Book of Metaphysical Thoughts* (1871). A.A. Luce and T.E. Jessop published these *notes* (in wrong order) under the proper title *Philosophical Commentaries* (1944).

The *Philosophical Commentaries* contains notes on diverse philosophical problems:

"The *Commentaries* is at first sight a bewildering document: in odd remarks on time and eternity, on space and motion, on ideas and the soul, mingle with odder remarks on convex and concave glasses, polygons and circles, lines and points, curves and surds, arcs and abscisse. It is a maze in which a beginner without the clue is lost. Therefore it is not a book for hurried reading or skimming. It is a book for meditation, when you are in a mood for following the winding paths of a great man's private thoughts on a lofty theme. The clue to the maze is immaterialism. Berkeley wrote the *Commentaries* as a study in 'ye immaterial hypothesis' (No 19). All turns on his view that you can have a true philosophy of the world

without the traditional Greek notion of material substance. The entries on vision are there to show that we do not see matter; those on physics are there to show that gravity is not proportional to matter; those on the mathematical problems are there to show that the infinite divisibility of matter is an idle phrase (Editor's Introduction, *P.C.* pp. 4-5)."

The *Note Book B* is the basis of Berkeley's first work *An Essay on Vision* (1709). And *Note Book A* is the basis of his second work the *Principles* (1710). The subject matter of the *Essay* is 'behaviouristic materialism', and that of the *Principles* is 'immaterialism.' And Berkeley was in no mood to give up the subject matter of the *Principles* i.e. immaterialism till the last day of his life even in the midst of adverse criticism from all quarters.

II. An Essay towards a New Theory of Vision 1709—A Popular Monograph of Berkeley

1. The Essay on Vision

An Essay towards a New Theory of Vision is popularly known as *The Essay on Vision* or simply the *Essay*.

Of all the works the *Essay* was very dear to Berkeley. He presented it to his readers on ten different occasions and in three different styles.

The *Essay* was first published in 1709 and then in 1710 from Dublin. The *Essay* was published thrice in 1732 as an *Appendix* to *Alciphron* (twice from London and once from Dublin). The *Essay* was published in 1733 under the title *The Essay of Vision...Vindicated and Explained* from London. Further *Alciphron's* Fourth Dialogue is the *Essay*. The *Alciphron* was published four times—twice from London in 1732 and once from Dublin in 1732 along with the *Essay*; Last publication of the *Alciphron* in 1752 was without the *Essay*.

The *Essay* was presented in three different styles—inductive, deductive and dialogue. The style of the *Essay* is inductive and that of the *Vindication* is deductive; while the style of *Alciphron's* Fourth Dialogue (which is the *Essay*) is of dialogue.

2. The Comments on the Essay on Vision

The second edition of the *Essay* attracted Archbishop King's attention and he commented upon it.

Some substantial criticisms of the *Essay* (1732 edition) appeared in the *Daily Post-boy* of the 9th September 1732. Berkeley answered the criticisms of the *Daily Post-boy* by writing *The Theory of Vision...Vindicated and Explained* in 1733. This book was accepted.

Dr. R. Smith commented upon the *Essay* in his *A Compleat System of Opticks* (1738) on two points :

- (a) The 'Chesselden case' does not support the *Essay*.
- (b) The *Essay* accepts that the external objects are suggested and signified by the sensations of lights and colours, and that the connection between them is habitual and empirical.

(a) Smith's first comment has no weight since the subsequent critics of Berkeley have advocated that the 'Chesselden case' provides experimental evidence to Berkeley's theory.

(b) Smith's second comment is equally superfluous because in some form or other this is really Berkeley's theory of vision, which the subsequent critics accept as the best theory. The critics think that Berkeley which emerges out of *Essay* is a genuine empiricist and not merely a middleman between Locke's inconsistent empiricism and Hume's visualism.

Voltaire's *Elemens de la Philosophie de Newton* (published in 1738 at Amsterdam) contains praise of Berkeley's *Essay* in Chapters V and VI. Further due to Voltaire's influence the French translation of *Alciphron* along with the *Essay* (1734) became popular in France. Subsequently the French thinkers, like Condillac, D'Alembert Diderot, Buffon etc. accepted the *Essay*.

Dr. Hartley was clearly influenced by the *Essay*. His *Observations on Man* (1749) refers to 'touch (Prop. 30)' and 'vision (Prop. 58)' in Berkeley's sense.

D. W. Porterfield of the Scottish School of Philosophy appears to be influenced by the *Essay*. *A Treatise on the Eye* (published by him in 1759 at Edinburgh) is in praise of the *Essay*. But Porterfield professed to be against the *Essay*.

Thomas Reid's *Inquiry into the Human Mind* (1764) is full of references to Berkeley's *Essay*. Reid rejects Berkeley's immaterialism. But he accepts his theory of heterogeneity of visible and tangible objects and his doctrine of visual language.

Reid's successors in the Scottish School of Philosophy namely Dugald Stewart and Thomas Brown praised Berkeley's *Essay* in eloquent words.

Sir William Hamilton thinks about the *Essay* that "nothing in the compass of inductive reasoning appears more satisfactory than Berkeley's demonstration..."²

Adam Smith in his *Essays* (1795) says that Berkeley's *Essay* is "one of the finest examples of philosophical analysis that is to be found, either in our own or in any other language."³ He confesses that his own views on vision has been borrowed from the *Essay*.

Sir James Mackintosh's, *Dissertation on the Progress of Ethical Philosophy* (1830, p. 208) praises *Essay* as "a great discovery in mental philosophy."⁵

But Samuel Bailey challenges the merits of the *Essay*. In *A Review of Berkeley's Theory of Vision* Bailey⁶ attacks *Essay* on the following points:

(a) Berkeley confuses between "perception of outness" and "judgment of distance", and so he is unable to establish the "tactual origin of visible outness".

(b) The "Chesselden case" does not establish Berkeley's case for the heterogeneity of sight and touch.

(c) Berkeley's theory is not true in the movements of infants and in the behaviour of young animals.

J.S. Mill⁷ answers Bailey's objections in his *West Minister Review*, October 1842.

(a) Mill thinks that it is Bailey's failure to grasp the distinction between sensations and inferences from sensations which makes him to say that Berkeley confuses between "perception of outness" and "judgment of distance"; and so his charge regarding "Berkeley's failure in establishing the "tactual origin of visible outness" does not stand.

(b) Mill re-asserts that the 'Chesselden case' provides experimental evidence to Berkeley's theory.

(c) Mill accepts the difficulty of admitting Berkeley's theory in the case of infants and lower animals. And Berkeley never claimed so. Any way these facts do not falsify Berkeley's theory.

Mill appeals to the 'general consent of the opposed schools of thinkers' for the acceptance of Berkeley's *Essay*.

Surprisingly A.C. Fraser⁸ speaks of Berkeley's *Essay* in depreciatory tone "this tentative juvenile *Essay*". But Fraser's depreciatory tone on the *Essay* appears to be unfair in view of the homage paid to it by other thinkers.

Professors A.A. Luce, and T.E. Jessop published Berkeley's *Essay on Vision* at Edinburgh in 1948 with the detailed editorial notes in praise of the *Essay*. They consider Berkeley's *Essay* as "a great book in any company and any generation".⁹

John Anderson's Australian disciple Professor D.M. Armstrong in his book *Berkeley's Theory of Vision* (published at Melbourne in 1960) points out that the main theme of the *Essay* is "Berkeley's heterodox view of the relation between visible and tangible objects" (writer's view on the book). This principle is quite new and unchallengeable.

Colin Murray Turbayne in his *Works on Vision* (1963 U.S.A.) thinks that along with Newton's *Opticks*, Berkeley's *Essay* is a work on scientific discovery.

A.D. Ritchie, a contemporary thinker of the Scottish School of Philosophy and successor to Professor Norman Kemp Smith as Professor and Chairman of the Department of Philosophy, Edinburgh University, in his posthumous publication *George Berkeley: A Reappraisal* (Manchester University Press, 1967) says that Berkeley's *Essay on Vision* is "not just the first, it is the main, central, constructive and most strictly scientific work; also in Berkeley's own view, the most strictly theological (page 2)."

My own view on Berkeley's *Essay on Vision* is that what Berkeley says in his *Essay* he says once for all so far as he is himself concerned, and I believe so far as all sound philosophy is concerned.

3. Berkeley's 'New Theory' in the *Essay*

What is a new theory in the *Essay*? Berkeley does not give any specific answer to this question. The title of the *Essay*, e.g.

"*An Essay towards a New Theory of Vision*" also suggests that Berkeley has no ready made 'theory' for his readers in the *Essay*, and instead the *Essay* only offers some "steps" towards "a new theory". Later on Berkeley's confidence in the *Essay* grew and he wrote "*The Theory of Vision...Vindicated and Explained*". In *Section 34* of the *TVV* he uses the term "my theory". And in *Section 38* of this book he says that "vision is the language of the Author of Nature". Should this be accepted as "a new theory"? This should have been taken as Berkeley's "new theory" had he given a detailed account of it. In the absence of any detailed account of "vision is the language of the Author of Nature", no psychologist or oculist or optician would call it "a new theory" of Berkeley.

Neither could Berkeley's useful discussions about the principle "that distance, size and situation are judged, not seen" be accepted as his "new theory"? The reason is that this principle is very old¹⁰ and it was accepted in philosophy long before Berkeley had written his *Essay*.

Although Berkeley's arguments regarding the denial of perception through geometrical properties in the *Essay* are important and of high order, but they hardly amount to a theory.

The central thesis of the *Essay* is Berkeley's sharp distinction between the objects of sight and touch. Berkeley borrowed this doctrine from Irish thinker Molyneux. Later on Berkeley tested the reliability of this doctrine on experimental basis by taking up 'Chesselden case' and many other cases. Thomas Reid also found truth in this doctrine of Berkeley. I may be pardoned if I say that let anyone judge this Berkeleian doctrine and I am sure that one would become convinced of the truth of this doctrine. Therefore this factor has better claim over any other factor to be called "Berkeley's new theory". As Dr. G.E. Davie in his *Preface* to Professor A.D. Ritchie's posthumous book *George Berkeley: A Reappraisal* (Manchester University Press, 1967) says that "in differentiating the visual world from the tactual, Bishop Berkeley had in mind to execute the classic manoeuvre of distinguishing to unite (p. x)". What Berkeley had in mind was that experience properly understood consists not in the sensations of vision alone but in the com-

parison—in the distinguishing and correlating the sensations of vision with those of touch. Berkeley was the first to say that visual reports about the world, in abstraction from the tactual reports about the world are unintelligible, or indeterminate information.

A.D. Ritchie's study of Berkeley's *Works* in general and *NTV* in particular convinces him that the principle of heterogeneity of sight and touch gives the criterion of truth and error in perception. Truth lies in the corroboration of sight and touch, and error lies in the non-corroboration of vision and touch. Only precaution is that one has to learn to corroborate vision and touch. And this process of learning how to corroborate between the senses starts from childhood.

Berkeley that emerges out of *NTV* is a genuine empiricist, a realist and behaviouristic materialist.

III. The Principles of Human Knowledge

Before writing *NTV* Berkeley began writing his *Principles*. However he left his *Principles* incomplete and first completed and published *NTV* in 1709. Thereafter he finished and published his *Principles* in 1710. So the *Principles* is his second major work.

In this book Berkeley established 'immaterialism'—namely the corporeal objects are ideas in the mind. The maxim '*esse est percipi*' is the ground for proving the corporeal objects as ideas in the mind.

According to this maxim the corporeal objects can exist only when they are perceived by any mind. For, it would be contradiction in terms to speak of anything corporeal if it is imperceptible or entirely unperceived. He says:

"The table I write on, I say, exists, that is, I see and feel it; and if I were out of my study I should say it existed, meaning thereby that if I was in my study I might perceive it, or that some other spirit actually does perceive it.... For as to what is said of the absolute existence of unthinking things without any relation to their being perceived, that

seems perfectly unintelligible. Their *esse* is *percipi*. . . . (*The Principles* S. 3)."

Now if the existence of the corporeal objects depends upon their being perceived by any mind or perceiver, they are collections of ideas. Since whenever we see or perceive the corporeal objects, we are directly acquainted with the sense-data or ideas. As Berkeley says:

"Thus, for example, a certain colour, taste, smell and figure and consistence having been observed to go together, are accounted one distinct thing, signified by the name *apple*. Other collections of ideas constitute a stone, a tree, a book and the like sensible things. . . ." (*The Principles* S. 1)

Now if corporeal objects are the collections of ideas, they cannot exist without the mind, implying thereby that they exist within the mind. Berkeley is, therefore, justified in thinking that ". . . all the choir of heaven and furniture of the earth, in a word all those bodies which compose the mighty frame of the world have not any subsistence without a mind. . . ." (*The Principles* S.6).

But in Section 43 of the *Principles* Berkeley realises that there is some difficulty in the establishment of immaterialism. He says:

". . . how is it that we perceive distance and things placed at a distance by sight. For that we should in truth see external space, and bodies actually existing in it, some nearer, others farther off, seems to carry with it some opposition to what hath been said, of their existing no where without the mind. The consideration of this difficulty it was, that gave birth to my *Essay towards a New Theory of Vision*. . . ."

Berkeley, therefore, temporarily postponed finishing and publishing the *Principles*. In the meanwhile he finished and published his *Essay on Vision* in 1709, where he conceals 'materialism'.

Later on in 1710, Berkeley published the *Principles*, which he describes as Part I. Here he kept intact the immaterialism.

He, however, made a promise to write Part II of the *Principles* as well, where he was to write his Moral Philosophy. But the promised Part II never came out, because Berkeley lost its MS about fourteen years ago during his travels in Italy and he had no leisure to write twice on the same subject.

Be as it may, Berkeley's *Principles* (Part I) invited lots of criticism. A few people who read his book made outburst of rage against Berkeley in the coffee house of London with jokes and jeers and display of cockney wit. And the book was almost entirely ignored by the philosophers. Many raised open scandal of Berkeley's immaterialism.

But Berkeley was a tactician. He was convinced of immaterialism, long before he finished his *Principles*. He thought to convince his reader of immaterialism through dialogues. In *Three Dialogues between Hylas and Philonous*, Berkeley postulates two characters Hylas (a materialist) and Philonous (an immaterialist). All discussions and arguments of Hylas are in favour of materialism and those of Philonous are in favour of immaterialism. Ultimately it is Philonous, who convinces Hylas about the truth of immaterialism. Thus through the mouth of Philonous Berkeley is able to prove immaterialism.

But although Berkeley accepted immaterialism but he never discussed it in any other work, not because he abandoned it but because he had other subject matters to discuss in other *Works*.

IV. Passive Obedience

The details of publication of several editions of Berkeley's *Passive Obedience* have been given in his *Chief Works*.

In *Passive Obedience* Berkeley presents his political thought. In this work he repudiates "Hobbist absolutism without running into the opposite extreme of political permissiveness with Locke's disciples."¹¹ Socially conscious Berkeley was suitable to discuss politics of Ireland.

This *Essay* had a very successful appeal to the Irish mass.

V. De Motu

Berkeley published *De Motu* first in 1721 and re-published last in his *Miscellany* in 1752, before his death.

De Motu is a brief tract. It is written in good and correct Latin. But in construction and balance the book is disappointing and it falls below Berkeley's usual standard.

The title of the book is ambitious since it suggests that *De Motu* is a work on motion in general. But this is not. A modest title *Motion without Matter* could have served the purpose. Even then the book is of absorbing interest and value. The treatise is an application of immaterialism to contemporary problems of motion. Berkeley thought of immaterialism in his youth and did not loose his faith in this doctrine till the last day of his life. The *De Motu* in company with the *Principles* is sensible but the *De Motu* in isolation from the *Principles* is non-sense.

The tract is not a sudden incursion of Berkeley into physics. For the idea of writing this tract had been in Berkeley's mind some fifteen years before he actually wrote it. This is evident from the following entries in the *Philosophical Commentaries*.

X Motion, figure and extension perceivable by sight are different from those ideas perceived by touch wch goe by the same name. (28)

N Qu: How to reconcile Newton's 2 sorts of motion with my doctrine. (3)

Berkeley did not suddenly jump over the philosophy of motion in *De Motu*. This is also clear from the fact that Berkeley in his *Essay* (SS 137-8) discusses visible motion and tangible motion, and shows their heterogeneity, adding, "the consideration of motion may furnish a new field of inquiry". The inquiry to some extent is found in the *Principles* is (SS 97, 102-5, 110-16). And the promise of an inquiry was fully met in *De Motu*. (Nelson Edition, Vol. IV, p. 4).

In *De Motu* Berkeley examines and refutes Newton's doctrine of gravitation, his absolute space, time and motion, and substitutes his own "world of passive significant realities in the mind of God and for the mind of man".

VI. Alciphron or The Minute Philosopher

Berkeley published several editions of *Alciphron* (mentioned

in his *Chief Works*). Each edition of the *Alciphron* was appended with *Essay* except the 1752 edition, which unfortunately omitted the *Essay*.

From the literary point of view *Alciphron* is Berkeley's best work. As a work of art it stands supreme in the entire English literature of philosophy, *Alciphron* is one of the three best Christian apologetics written in the eighteenth century. The other two Christian apologetics being Butler's *Analogy* and Paley's *Evidences* (1794).

Berkeley's *Alciphron* is the best dialogue written after Plato, from whom he perhaps learnt the art of writing philosophical dialogue. *Alciphron* as a dialogue can be compared only with the dialogue of Plato.

Alciphron on the whole deals with the Natural Religion and Berkeley's arguments for faith in God are of very high order. But *Alciphron's* IV Dialogue is the *Essay* in dialogue and because of which its subject matter is heterogeneity of the objects of sight and touch.

VII. Analyst

The *Analyst* was published in 1734 both from London and Dublin. This is Berkeley's only philosophical work which he wrote in England.

The *Analyst* is a work on mathematical philosophy. This work gave Berkeley his due position among the mathematicians of the day.

VIII. A Discourse addressed to Magistrates

The *Discourse* was published both from London and Dublin. in 1738. Dr. G.E. Davie puts down in brief its main theme:

"...the question of a limitation on the liberty of discussion is frankly faced with a most impressive awareness of its complexity. Forbid unrestricted discussion, and you suppress evidence, endangering truth; insist with the free-thinkers, on unrestricted public discussion, and you are liable to turn certain sorts of men into 'monsters' of moral scepticism."¹²

IX. The Querist

The details of the publications of the *Querist* are given in Berkeley's *Chief Works*. The *Querist* is a popular work of Berkeley on economic thoughts and on the affairs of Ireland. The rampant poverty of the Irish mass together with the famine and various diseases which forced the Irish to most pathetic and pitiable condition moved Berkeley very much. In such condition Berkeley wrote his *Querist*. Being an economic theorist and not a professional politician Berkeley's discussions in the *Querist* had weight over the leading economists of the day.

Besides, Berkeley's *Querist* is a great work on social philosophy.

X. Siris

The details of the publications of Berkeley's *Siris* have been given under Berkeley's *Chief Works*. It has also been pointed out there about the number of letters etc., which Berkeley wrote and published in continuation of his *Siris*.

The number of publications of *Siris* is a proof of the popularity of *Siris*.

In *Siris* Berkeley speaks about tar-water as a cheap and safe remedy for various diseases. Berkeley became famous and so also his *Siris* not only in Ireland but in greater parts of Europe.

Berkeley's *Siris* was an encroachment on medical profession of the day. Seeing Berkeley's success in curing poverty-stricken mass of their various diseases through tar-water, the whole medical men were the pitiable lots. They had nothing to say except that Berkeley was taking "breads out of their mouths". And they themselves started thinking on Berkeleian line of treatment of various diseases through tar-water.

From modern medical point of view *Siris* is not a success. But from the point of view of the medical facilities available in the eighteenth century, *Siris* is a success, because the tar-water provided relief from various ailments.

Also the central thesis of *Siris* is that life depends on God. Men live only for the periods God wishes them to live. And so long men live doctors only provide them best facilities to live.

The doctors never extend the life of men. If this is so, tar-water was good and helpful to allow the poor people to live well and free from all diseases with very little costs. So in this context Berkeley's *Siris* is a success.

XI. General Estimate

A correct estimate of Berkeley can be made only on the basis of his *Chief Works*. Berkeley gives various kinds of philosophy in his various Works.

Berkeley in his *Essay on Vision* puts visual experience in proper place in relation to haptic experience. Thus in *Essay on Vision* Berkeley is a genuine empiricist because he thinks that experience does not consist merely in seeing things nor in merely feeling objects but experience proper consists in integrating, co-operating and corroborating objects of sight and touch. He did not clarify some of the terms, which he used in *NVV*. Had he clarified all the terms, he would have been nearer Immanuel Kant and in some respects even ahead of Kant.

In the *Principles*, Berkeley is an immaterialist. He accepted this doctrine in his youth and he held it till the last day of his life.

Berkeley's *De Motu* is an inquiry on motion in general and commentaries on Newton's doctrine of gravitation, his idea of absolute space and time in particular. Berkeley in this treatise emerges as a natural physicist.

In *Alciphron* Berkeley that emerges is a firm believer in God.

Berkeley's *Analyst* is a work on mathematical philosophy. Berkeley that emerges in *Analyst* is a mathematician-cum-philosopher and is nearer to Bertrand Russell.

Passive Obedience, *Querist* and *Siris* contain Berkeley's views respectively on politics, economics and medical sciences.

Thus Berkeley that emerges out of his different Works is a hard headed realist having diverse thoughts on diverse subjects. He never tried only one trend of thought.

References

1. Dr. G.A. Johnston was the first to number the 9 hundred notes in his *Work on Berkeley*, 1930.

2. T. Lorenz first discovered this mistake (*Archiv fur Geschichte der Philosophie*, 1905, XVIII, pp. 554 ff.).
3. Berkeley's *Works*, Vol. I. Nelson Edition, Edinburgh, 1948, p. 155.
4. *Ibid.*, p. 155.
5. *Ibid.*, p. 155.
6. *Ibid.*, p. 155.
7. *Ibid.*, p. 155.
8. *Ibid.*, p. 156.
9. *Ibid.*, p. 156.
10. *Ibid.*, p. 147-8.
11. A.D. Ritchie—*George Berkeley: A Reappraisal*, Manchester University Press, 1967, Preface, p. xiv.
12. *Ibid.*, p. XIV.

On not Seeing Double*

Richard Taylor and Timothy Duggan in their essay *On Seeing Double* (*The Philosophical Quarterly*, April 1958), point out that we see double. They argue that we see double (assuming that both eyes are open), when we look simultaneously at one object and attend to another object in the same line, which latter then appears double. (Here they rely on Thomas Reid's experiments on double vision as reported in his *Inquiry into the Human Mind*, Ch. VI, S. 13). The hunter while aiming at the partridge can attend to the twigs, leaves, etc., and then they appear double to him. But only by making a special effort is he aware of his double vision; hence most people, although they often see double, do not notice the fact.

David Carl Blumenfeld, however, in his essay *On Not Seeing Double* (*The Philosophical Quarterly*, July 1959), attacks Taylor and Duggan, as follows:

"But this is a queer thing to say! How is it possible that something should appear to be *in any way* (let alone double) without my noticing it at all? Isn't it true that an appearance itself is no more than what appears or is *in some way* noticed?" (p. 264).

So Blumenfeld holds that we do not actually (in the normal case) see an object as double. He says, for instance, that the double appearance of the twigs, leaves, etc., is not observed or noticed. And if so, we must not accept double vision because this would mean acceptance of "unobserved sense data". Blumenfeld is, therefore, in a sense a Berkeleian, for Berkeley

* Published in the *Philosophical Quarterly*, St. Andrews University, Britain, April 1961.

also in his *New Theory of Vision* (1709), and later in his *Theory of Vision...Vindicated and Explained* (1733) does not accept "unobserved sense data". Not only in the *NTV* and *TVV* but even in *The Principles* (1710) he rejects "unobserved sense data" when he claims that the acceptance of the existence of sense data without being observed is contradictory.

There is, however, some difference between Blumenfeld and Berkeley. Blumenfeld dismisses double appearance and instead accepts single appearance mainly because, whereas the former is "not observed", the latter is "observed". Berkeley, although dismisses double appearance, accepts single appearance not so much because it appears so to the observer, but rather because single appearance is single even after it is interpreted in terms of tactile experience. Throughout *NTV* he argues the necessity of interpreting visual experience in terms tactile experience before it is accepted as real. Later he confirms this in *TVV*.

The reason why Berkeley specifically calls for the acceptance of an experience as true only after comparing vision and touch is that he considers perception a type of practical learning, e.g., by grasping and handling, and being mutually involved in things; and the reason why he stresses the need to interpret visual experience in terms of tactile experience is that he regards tactile experience as more important and more advantageous than visual experience (Professor A.D. Ritchie's *Studies in the History and Methods of the Sciences*, 1958, p. 5).

This means that although we see single, the visual experience is merely the sign which indicates the tangible object, while the tangible object itself can be perceived by handling. But the sign and the tangible object become associated not necessarily but habitually in course of time. When the observer opens his eyes the sign signifies the tangible object which can be perceived by handling. So swift, sudden, and unnoticed is the transition from the sign to the tangible object that we can hardly check ourselves from thinking it equally the object of vision. But this is a vulgar mistake and untrue; for the tangible object itself can be perceived only by handling.

Once it is accepted that the tangible object is perceived by handling, the solution of double vision (if there is such a pheno-

menon) is easy. Now we can discover that what we call one pencil is one, not two or three or more, by handling it and then interpreting our visual experience accordingly. Thus a being with sight alone (such as we are not) could not decide whether or not his double vision or his single vision was to be preferred. In order to choose between single and double vision one must have, besides visual experience, tactile or haptic experience. Only then can one interpret one's visual experience in terms of tactile or haptic experience before accepting it as real.

Bertrand Russell's Theories of Perception*

In this article it is pointed out that Lord Russell does not accept the causal theory or the representative theory or the sign-theory of perception; instead, he oscillates between these three theories and ultimately leaves the problem of perception in utter confusion.

A reading of Russell's works shows that he prefers the causal theory of perception. This causal theory was systematically expounded first by the Roman poet and philosopher Lucretius in *De Rerum Natura IV*. He said that when we look at an object, the 'image' becomes detached from the object, it comes and enters into our eyes and we perceive the image, and by perceiving the image, we perceive the object. For instance, when we look at a tree or at a pen, the image of a tree or of a pen becomes detached from the tree or the pen, the image comes through the air and enters into our eyes and we perceive the image of the tree or of the pen; and by perceiving the image of the tree or of the pen, we perceive the tree or the pen. Later on, Thomas Hobbes accepted the causal theory in his *De Corpore IV*, but he illustrated this theory in a different way. He said that when we look at an object the motion from the object comes and presses upon the outer retina and, thereafter the motion or pressure enters into the innermost centre of the sense organ, e.g. the heart. Now, it so happens that there is a 'reaction' between the motion-

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from the object reaching the sense organ and the inner motion of the sense organ, and, as a result of the reaction between these two motions, the 'phantasm' is born and we perceive the 'phantasm'; and the perception of the 'phantasm' means the perception of the object. For instance, when we look at the sun, the motion from the sun strikes the outer retina and thereafter the pressure or motion enters into the innermost part of the sense organ, namely, the heart. Now there is a 'reaction' between the two motions, e.g. motion from the sun into the sense organ and the internal motion of the sense organ. As a result of the 'reaction' between these two motions, the phantasm of the sun is born and we perceive the phantasm; and, by perceiving the phantasm of the sun, we perceive the sun.

Now, Russell expounds the causal theory quite differently from these thinkers. He says that when we look at an object, the light waves from the object come to the eyes and then neural impulses, starting from the eyes, reach the brain, where they suddenly change into mental act of perception and we see the object.¹ For instance, in *The Analysis of Mind*² Russell explains the causal theory as follows: he says that when we look at a star, a spherical wave of light from the star travels through the space to the eyes and consequential changes in the eyes reach the brain and then we perceive a star. This means perception is possible when there is a causal chain between the object and the brain. Again in *An Inquiry into Meaning and Truth*,³ he explains the causal theory in terms of light waves. He says that when we look at the sun, a large number of atoms in the sun emit radiant energy in the form of light waves or photons which travel across the space between the sun and the eye in about eight minutes. When they reach the eye, their energy is transformed into a new kind, something then happens in the rods and cones of the retina; a disturbance travels along the optic nerve, something, then, happens in the appropriate part of the brain, and then we see the sun.

Thus Russell accepts the causal theory. He however, also accepts the representative theory. The representative theory was systematically expounded first by Descartes in the

Discourse on Method and *Meditation*, and later on by Locke in the *Essay*, and in our own day by W.A. Sinclair in *An Introduction to Philosophy* (1944). Descartes, first, looked to physics and physiology. Now these sciences explained perception in terms of light, nerve cells, brain, etc. and brought into existence the theories of light and colour. But the sensations of light and colour, as Descartes says, differ from the antecedents which generate them. The antecedents are mechanical processes in the public world, but, the sensations occur in the fields of consciousness.

Hence, Descartes leaves the perceptual theory as suggested by physics and physiology, and accepts the representative theory. He holds that percipient does not perceive the objects but he perceives the copies or representations or images⁴ of the objects which a percipient constructs in the light of his past experiences out of sensations that the objects arouse by acting upon eye and through the eye upon the brain.⁵ The objects are invisible and even intangible. What alone is perceived is the representation of an object, and representation is not material body but a mental image in the field of consciousness. Thus in terms of the representative theory, when a percipient perceives a table, he does not really perceive the material or physical table, but, he perceives its representation or image or copy or idea in the mind and through such "phenomenon" he perceives the physical or material table. So also when a percipient says that he perceives his friend, he does not really perceive his friend but he perceives the image or copy or idea or representation of the friend in his mind and through such "phenomenon" he perceives his friend. Later on Locke in his *Essay* accepted the representative theory as held by Descartes. In other words, Locke also believes that a percipient does not perceive material or physical object; instead, he perceives the image or copy or idea or representation of the table in the mind and through such phenomenon he perceives the table. In our own day W.A. Sinclair accepts the representative theory in *An Introduction to Philosophy* (1944). For instance, he says:

"On this theory, what each man sees is a picture or representation inside his mind or the real public situation out-

side his mind. It is entirely real to him, and he sees it very clearly. This cannot be denied."⁶

Indeed, Sinclair is of the view that this theory is the only theory of perception which can explain the "puzzling facts" of experience.⁷ Without going into the merits of the claim made by Sinclair, it can be said that in terms of the representative theory we do not (in any case) experience the real public world, and instead we experience its mental picture. As Sinclair himself admits:

"Instead of thinking, as we used to do, that we all see and hear and experience a public real world, we have been brought to think that we do not experience the real world at all. We seem to be totally and permanently cut off from it. We never experience it, and never can. Instead, what we each experience is a kind of mental picture. What I experience is my mental picture, and that is all. What you experience is your mental picture, and that is all. And what the next man experiences is his mental picture, and that is all. Each of us, according to this theory, is shut up inside his own mind (*Ibid*, p. 41)".⁸

Russell also accepts the representative theory since he believes in the perception of an object through its "representative image" in the mind.⁹

To sum up, Russell accepts the casual theory and the representative theory, i.e., he accepts the fact that a percipient perceives the physical or material object through a physico-physical mechanism,¹⁰ or the image of the object in the mind.

Now Russell's view of perception of the objects through the light waves or a physico-physiological mechanism and images¹¹ clearly mean that Russell accepts the theory that the light waves or images act as signs, which signify the physical or tangible objects. And if Russell accepts this, he accepts (incidentally perhaps) the sign theory of perception, which Berkeley at first expounded in *A New Theory of Vision* (1709) and which he later on confirmed in *The Theory of Vision Vindicated and Explained* (1733). In our own day, Professors A.A. Luce and T. E. Jessop in their works on Berkeley and Professor

A.D. Ritchie in his *Studies in the History and Methods of the Sciences* (1958) support this theory.

The sign theory which Berkeley puts forward in *A New Theory of Vision* and *The Theory of Vision Vindicated and Explained*, means that when we look at an object, the visible object is the sign signifying the tangible object which can be perceived by touch. This theory can be explained with the help of a concrete illustration as follows: when we look at a toy, the visible toy is the sign signifying the tangible toy which can be perceived by touch. But if the toy can be perceived through touch, how do we see it when we look at it? The sign theory explains this as well. In the past whenever we touched the toy, we also looked at it (unless it is assumed that we touched it in the dark); the result is that the tactile experiences of the toy become habitually connected with the visual experiences of the toy; and now whenever we look at the toy, we perceive it through vision. But we do so because vision is the sign of touch or the visible object is the sign signifying the object of touch.¹²

Now, since Russell seems to accept the sign theory of Berkeley, he may be said to be in agreement with Berkeley. But it is not so since whereas Russell oscillates (as seen above) between three different theories of perception, Berkeley accepts the sign theory. Berkeley excludes the transmission processes and theories entirely. Berkeley also excludes the perception of an object through its "representation" in the mind, and if he uses the term representation, he uses it in a new sense—in the sense that one item of experience stands as a sign or symbol of another item of experience, e.g., visual experience for tactile experience, or tactile experience for visual experience. Thus Russell is different from Berkeley, since Russell like Lecretius, Hobbes, Descartes and Locke regards that the "objects" can be perceived in terms of the "unobserved" and perhaps even "unobservable phenomena"

* The whole doctrine of elimination of unobservables remained in the background until late in the 19th century when Ernst Mach restated it systematically and, Einstein took it up to develop his theory of relativity.

(Russell's light waves, like Lucretius's image, or Hobbes' phantasm, or Descartes and Locke's representation or copy of image' are unobserved and even unobservable phenomena.) But Berkeley, unlike all these thinkers, eliminates "unobserved and unobservable phenomena" and concerns himself entirely with the "observables". The object for him means that which can be or is being sensed; colour means what is visible, shape means what is visible and also tangible.

Thus both Berkeley and Russell are different. Russell is also confused on the problem of perception and it is not possible to state his exact views on the problem of perception. If perception of an object is that which happens in the brain, it is bound to be confused perception of an object. Even his *Human Knowledge* (1951), which contains his most "mature ideas", does not clarify his theory of perception.

References

1. Bertrand Russell—*Human Knowledge*, 1951, p. 221
2. Bertrand Russell—*The Analysis of Mind*, 1951: pp. 133-4.
3. Bertrand Russell—*An Inquiry into Meaning and Truth*, 1951, 117-8.
4. The "images" of Descartes are different from the "images", of Lucretius.
5. Kemp Smith —*An Idealist Theory of Knowledge*, 1924, P. 18.
6. W.A. Sinclair—*An Introduction to Philosophy*, 1944, p. 34.
7. *Ibid.* p. 32.
8. *Ibid.* p. 41.
9. Bertrand Russell—*Journal of Philosophical Studies*, Vol. I, 1926, p. 80.
10. Bertrand Russell—*Human Knowledge*, 1951 pp. 221 Sqq.
11. Bertrand Russell—*The Analysis of Mind*, 1951, Lecture VIII.
12. L.P.N. Sinha—*On Not Seeing Double*, *The Philosophical Quarterly*, The University of St. Andrews, April 1961, p. 166.

The Perception through the Co-operation of the Senses*

George Berkeley tries to establish a theory of perception, namely vision alone does not Perceive an object and, instead, vision and touch jointly perceive an object. e.g. when we look at a table, vision perceives lights and colours only (*Philosophical Commentaries*, Nelson Edition, 1948, No. 226) but it does not perceive solidity (*PC* No. 106), extension etc. (*PC* No. 35); and instead touch perceives them; hence as vision perceives lights, and colours and touch perceives the other sensible qualities, e.g., solidity, extension etc.' they can perceive the table only jointly. This can be illustrated with Berkeley's own example. He says:

"Gold is a Metall, Gold is yellow; Gold is fixt, Gold is not a stone. (*PC*. No. 793)".

Now vision can perceive colours of the gold only; gold, however, is a metal and hence it is a solid; also gold is fixt, i.e. it has extension; but vision cannot perceive the solidity, also vision cannot perceive extension (*PC* Nos. 35, 106, 174 and 196), and instead it is touch that perceives the solidity and again it is touch that perceives extension. Thus as vision perceives colours of the gold and touch perceives the solidity, extension, etc. of the gold, it is vision and touch which jointly perceive gold.

Let us look at a toy: now vision perceives lights and colours only and it cannot perceive its heaviness, size, etc. instead, touch perceives them. This means that not vision alone but vision and touch jointly perceive a toy.

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Even an expert's eye cannot perceive the Johannesburg gold or a Burma pearl because his vision reveals to him its lights and colours only and not the tactile qualities; it is his touch that reveals to him the tactile qualities of the Johannesburg gold or of a Burma pearl; hence jointly by his vision and touch he can perceive the Johannesburg gold or a Burma pearl.

In the case of a rectangular object, say, a solid piece of silver also, it is both vision and touch which jointly perceive it. Since vision will perceive lights and colours only; perhaps vision may perceive even its length and breadth (*PC* No. 108); vision, however, will not perceive its solidity or depth (*PC* No. 106); hence vision cannot be said to perceive silver unless it perceives the solidity or depth. The solidity has been defined by Berkeley as follows:

"If anyone ask what solidity is let him put a flint between his hands & he will know (*PC* No. 78)."

After defining solidity, Berkeley points out that touch perceives the solidity or depth (*PC* No. 840). This means that vision and touch together perceive a rectangular piece of silver.

Let us suppose two pots of the same size and colour, but one containing hot water and another cold water. And if a stranger is asked to find out which one contains hot water and which one cold water, he cannot do it by his vision alone; however, he can do it by his vision and touch both.

Berkeley further clarifies the perception through sight and touch with the help of Molyneux's blind observer, who later on got sight (*A New Theory of Vision*, 1709, S. 132). Molyneux's blind observer (when he was blind) distinguished between a cube and a sphere by touch alone; but on getting sight, he failed to distinguish between them at once; however, gradually he learned to distinguish between them by comparing his previous tactile experience with his new visual experience. Even if it is accepted that Molyneux's observer gradually learnt the use of sight after he got it, the fact remains that his vision can know lights and colours only; it is his touch and not his vision that can know the solidity, extension, etc.

Hence he can perceive the sphere or cube through vision and touch both.

Later on Berkeley's confidence in the theory of perception through sight and touch grew stronger, and he confirms this theory in *The Theory of Vision Vindicated and Explained* (1733).

Professor G. Revesz supports Berkeley's theory of co-operation between visual and tactile senses. He says:

".....the perceptions of the visual and the tactile senses are related to the spatial nature of the external objects, with the result that, inspite of the phenomenological heterogeneity correlations become established between the impressions conveyed by the two senses.....(*Psychology and Art of the Blind*, Wolff's Eng. Trans., 1950, p. 30)."

Like Professor Revesz, Professor Ritchie also accepts Berkeley's theory of co-operation between sight and touch, and he thinks that vision in co-operation with touch gives primary experience:

".....primary experience isthat of grasping and handling and being mutually involved in things. We are both, active and passive, and vision becomes genuine experience, not just a play of lights and colours, only if it is involved in the realm interaction,...(*Studies in the History and Methods of the Sciences*, 1958, p. 5)."

Besides the co-operation between sight and touch Berkeley mentions the co-operation of taste and smell (PC Nos. 137, 138 and 241). It would be clear from the following illustration. In taking tea or coffee or liquor two senses come in—smell and taste, and not just one sense, say, taste; we can easily verify this: when we taste them with a clip on our nose, we sense no smell, but when we taste them without a clip, then sense of smell comes in. (The diagnostic sense is smell, and not taste, in the strict physiological meaning. The elaborate techniques of the professional's tasting of wine and other liquors, including 'tea-tasting' show this clearly).

Berkeley also mentions the co-operation of touch and hearing (PC Nos. 216, 787 and 861). For instance, a blind man combines his hearing with his touch, as when he avoids jumping into a well by hearing the echo of his steps. But whereas a blind man may or may not combine his hearing

with his touch, the sighted individual can hardly avoid combining his vision and touch. (Reference regarding the co-operation between touch and hearing can be found in *HMS* pp. 209-10, as well).

Berkeley also mentions the co-operation between three senses, e.g., vision, hearing and touch (*NTV*. S. 46). For instance, on seeing and hearing a friend singing, the observer feels as if he himself were singing. But it is not necessary that a sighted man must always combine his hearing with his touch: this he may or may not do; on hearing an actor singing on the screen, for instance, a man does not always necessarily feel as if he were singing.

Berkeley also mentions the co-operation of vision, touch, sound and taste (*PC* No. 240). This can be illustrated as follows: suppose a sighted individual is taking a bath seated under a water pipe; his vision conveys to him the colours of the water; while taking a bath, he feels the water as hot or cold; the water falling from the pipe produces some sound as well; lastly, if he is careless some drops of water enter into his mouth and he tastes these drops; thus in his case there is the co-operation of the four senses.

Berkeley also admits the co-operation of all the senses; for instance, in knowing an apple as sweet or sour, he says all the five senses, e.g., sight, touch, taste, smell and hearing are used (*The principles* S. 1). It can be clarified through a common illustration as well. When we taste a plum pudding, we use all our senses—e.g., taste (pleasant or unpleasant), smell (for the diagnostic sense is smell in the strict physiological meaning), vision (we look at pudding), touch (when we eat something, touch automatically comes in), and hearing (noise of plates and spoons).

However, it is not at all necessary that there must always be co-operation between two or three or four or five senses. Since the senses are used by the individual to explore a particular perceptual situation, the number of the senses needed to explore it can be decided by him. An individual can explore a particular situation by combining his different senses or even by one sense. As Berkeley says:

“No sooner we hear the words of a familiar language pro-

nounced in our ears, but the ideas corresponding thereto present themselves to our minds: in the very same instant the sound and the meaning enter the understanding: So closely are they united that it is not in our power to keep out the one, except we exclude the other also. We even act in all respects as if we heard the very thoughts themselves (NTV, S. 51)."

Here Berkeley throws out a hint that 'hearing' forms an autonomous realm, but it remained a hint only. Any way the auditory sense as forming an autonomous realm would be clear from this illustration.

When a stranger hears a yellow hammer (a common song-bird in Scotland) whistling its traditional 'A little bit of bread and no cheese', he may think that it is a child that speaks. But if he stops and listens carefully, he will hear the bird repeating the phrase over and over again without any variation. Also if he listens carefully, he will recognise that, as in all bird sounds, there are no genuine human consonants in it but only vowel sounds, not 't', 'b' or 'd' and not really 'ch' or 's'. Thus in the case of bird song, the listener, purely by listening, can distinguish it from human speech if he tries. And only if he is careless does he make a mistake. Similarly a blind man can also form an autonomous realm of the sense of hearing and, by using his sense of hearing only (or mainly), can learn the work efficiently. Any other sense (except perhaps sight only, if Berkeley is accepted) can form an autonomous realm. For instance, touch forms an autonomous realm, as when a blind man distinguishes a cube from a square.

Abbreviations used

PC—*Philosophical Commentaries*.

NTV—*An Essay towards a New Theory of Vision*.

HMS—*Studies in the History and Methods of the Sciences*.

Euclidean Geometry

A reading of George Berkeley's *Philosophical Commentaries* (Nos. 81, 101, 247, 261, 276, 384, 393-5) clearly shows that Berkeley knew Euclidean Geometry quite well. His another work, *A New Theory of Vision* (1709, SS. 150—9), also makes it quite clear that he was familiar with the Euclidean Geometry.

An Euclidean geometrical figure, say, a square or a cube or a circle or a triangle or any other Euclidean figure is a material plane figure. Now, the material plane figure is necessarily a three-dimensional figure, having length, breadth, and thickness. This means that any Euclidean geometrical figure is a three dimensional figure. This is also confirmed by Professor G. Revesz in his *Psychology and Art of the Blind* (Wolff's Eng. trans. 1950, p. 3).

Now, if the Euclidean geometrical figure is a three-dimensional plane figure, can sight perceive it? The proper objects of sight, as Berkeley says, are diversity of colours and not solids nor planes nor other Euclidean geometrical figures. Thus it is clear that geometrical figures cannot be perceived through sight, rather they can be perceived through touch (*NTV*. S. 159). In this connection it would be useful to point out that, like Berkeley, H. Friedmann also assigns the Euclidean geometry to tactile or haptic sense (*Die, Welt Formen*, Munich, 1930, p. 38).

A question arises here : Are not the Euclidean geometrical figures which we draw on a piece of paper or on a black board perceived through sight? The reply is that since the drawn geometrical figures are representatives of material plane figures, the drawn figures are also tangible, and hence being also the

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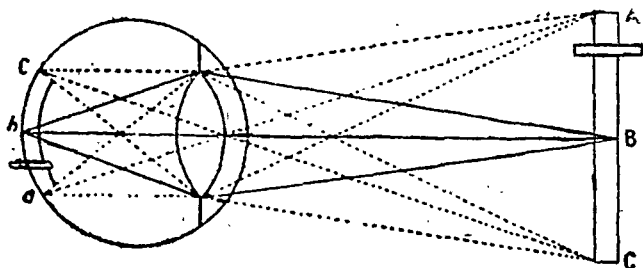
objects of touch, they can be perceived through touch. Further, as in drawing the Euclidean geometrical figures on a piece of paper or on a blackboard, the eye, hand, and neck movements co-operate with hand and arm movements, and each of these in turn with retinal process in order to produce good Euclidean geometrical figures; these geometrical figures, are therefore, really perceived through bodily movement. Of course the perception through bodily movement is perception not through vision; rather it is, in Berkeley's sense, perception through touch (*NTV*).

Thus it is clear that an Euclidean geometrical figure is perceived through touch and not through vision. The fact that an Euclidean geometrical figure is not perceived through vision follows from Berkeley's discussion about the inverted retinal image, wherein he proves that the retinal image is not at all helpful in perceiving an object. And the fact that an Euclidean geometrical figure is perceived through touch follows from Berkeley's illustration of an unbodied spirit who has the sense of sight but who does not have the sense of touch, and who, in consequence, has no perceptual knowledge of any geometrical figure.

Let me first summarise Berkeley's argument against perception of an object through its painting on the retina. It is said that an object, if it is to be perceived, must be "painted" on the retina. But if it is at all painted on the retina, it is painted in an "inverted order". And if so, how is it that the object is seen erect and in its natural position?

Many opticians felt this difficulty, and some of them offered solutions. But the solution that Molyneux offers is important. In the *Dioptricks* (1690, prop. XXVIII), he says that the ray of light falling on the upper part of the eye comes in a direct line from the lower part of the object; and the ray of light falling on the lower part of the eye comes in a direct line from the upper part of the object (Berkeley mentions this in *NTV*.S. 89). For instance, in the Figure "C" the lower part of the object A B C is projected on "c", the upper part of the eye; "A" the upper part of the object ABC is projected on "a", the lower part of the eye; and "A B C" as a whole is projected in an inverted form, say "c b a". That

is, "A B C" is painted as "c b a", but even then "A B C" is seen as "A B C" and not as "c b a".



This Figure in Berkeley's *NTV* is a reproduction of Molyneux's figure Tab., 25. Its description is in *Dioptricks*, p, 103 sqq.

The solution that Molyneux offers for seeing ABC is that mind considers the stroke on "c", the upper part of the eye, as coming in a straight line "Cc" from the lower part of the object, and the mind considers the stroke on "a", the lower part of the eye, as coming in the line "Aa" from the upper part of the object, and consequently the mind sees ABC, although it is painted as "c b a". Berkeley rejects this solution (*NTV*, S. 90) of the optical puzzle since the terms high, low, upper etc. are applicable to tangible objects, and not to visible objects. For the solution of any visual problem, the visible objects must be clearly distinguished from the tangible objects. The way out of the difficulty of inverted painting of an object followed by its erect perception, as Berkeley says (*TVV*, S. 49), is to regard retina, crystalline lens, pupil, rays, crossing, etc. as tangible things. (A surgeon or a physiologist can touch them). This being so, the images projected by tangible rays on a tangible retina, are tangible in nature. They are thus not the proper objects of sight. The tangible images on the retina may have some resemblance to tangible objects and they may be inverted with respect to them. They are, however, not the objects of sight. And to suppose that they are, is a vulgar error, and this must be avoided (*TVV*, S. 50). Berkeley rejects the perception of an object with the help of an image painted on the retina. Instead of perceiving the object through inverted retinal image, the observer perceives an object by moving his eyes. By turning down his eyes the observer perceives the lowest part

of the object, and by turning up the eyes the observer perceives the highest part of the object; by moving his eyes towards right he perceives the right side of the object, and by moving his eyes towards left he perceives the left side of the object. Frankly speaking, there is no need of retinal image in order to perceive an object (*NTV*. S. 98). It, therefore, follows that an Euclidean geometrical figure, being an object, cannot also be perceived through image painted on the retina.

Berkeley thinks that the Euclidean geometrical figure is not perceived through vision. Instead, the Euclidean geometrical figure is perceived through touch. He supports this with the help of an illustration of unbodied spirit which does not have the sense of touch. As this unbodied spirit has no sense of touch, it can have no tactile experience of any thing nor can it experience distance, height, depth, space and body. To know Euclidean geometry, however, the experience of these things is necessary. But unfortunately as it has no experience of these things it can never know a geometrical figure (*NTV*. 154). It follows that this unbodied spirit cannot describe like a geometrician a straight line, circle compass and the like. Nor it is easy for it to conceive the placing of one geometrical figure on another to prove their equality, for this involves the idea of distance, height, depth, space, body etc. which, as said above, it does not possess. In the case of the unbodied spirit, it is established beyond doubt that as it has no sense of touch, it cannot know the objects of Euclidean geometry.

The subject of Euclidean geometry, say, a solid figure, is material or tangible, if one examines the popular misconception in painting where a plane is regarded as the object of sight whereas a solid is not regarded as the object of sight (*NTV*. S. 157). Against this misconception, Berkeley says that the planes are also not the immediate objects of sight. What do we mean by the expression, 'the pictures are plane'? If it means anything, it means that pictures appear smooth and uniform. Now the object of vision is the diversity of colours and not the smoothness and uniformity, i.e., plainness of the pictures. Thus planes like solids are not the immediate objects of sight (*NTV*. S. 158). We perceive planes in the same way as we perceive solids, say, through tactile sense.

Berkeley thinks that the visible objects are different from the tangible objects. It, therefore, follows that a visible geometrical figure is different from a tangible geometrical figure. But if so, why must a visible geometrical figure represent a tangible geometrical figure? For instance, why does a visible square and not a visible circle represent a tangible square? A visible square has four sides and four angles (but on a two dimensional perspective) as a tangible square has, and hence a visible square is fit to represent a tangible square. However, a visible circle has not four sides and four angles, instead it is bound by one curve without lines or right angles. This makes a visible circle unfit to represent the tangible square, but fit to represent the tangible circle (*NTV*. S. 141).

But although it is claimed that a visible square represents a tangible square it must not be concluded that the former is like the latter. The visible square represents the tangible square mainly because it has several distinct parts which mark the corresponding parts of tangible square. A tangible square has four distinct equal sides and also four distinct equal angles. Thus in order that a visible square should represent the tangible square, it must have four distinct equal sides to represent the four distinct equal sides of the tangible square and it must also have four distinct equal angles to represent the four distinct equal angles of the tangible square. As the visible square has all these parts and the visible circle has none of these parts, the visible square, and not the visible circle, represents the tangible square.

But although the visible figure, in order to represent the tangible figure, must have necessarily the same number of parts as the tangible figure, the parts of the two need not be of the same kind (they are indeed not of the same kind). The visible figures represent the tangible figures, as words represent sounds (*NTV*, S. 143). In the word *push*, for instance, the single letter *p* marks one simple uniform sound and so also the word *push* represents the sound associated with it. And yet the letter *p* or the word *push* are not like the sounds associated with them. Similarly, although the visible figures, represent the tangible figures, they are not of the same kind.

The visible figures are the signs (constant and universal)

of the tangible figures (*NTV*. S. 145). But although both are different and distinct, the moment we open our eyes, the ideas of the tangible figures are suggested by them. So swift, sudden and unperceived is the transition from visible objects to tangible objects that we can hardly check ourselves from thinking them equally the immediate objects of vision. But this is a vulgar error and untrue.

Berkeley clarifies further his Euclidean geometry. The visible figures in Euclidean geometry are, he says, of the same use as words are in communication of ideas (*NTV*.S.152). That is, we use words in speaking about geometry but the subject matter of geometry is not sound waves: we may look at figures and draw figures using our eyes, but the subject matter of geometry is not light and colours. The tangible figure (Euclidean) when handled and also when scanned by the eye, produces sense relations but not sense qualities, like yellow or warm. Even the supposed sense qualities of touch—soft, hardare relations, not simple qualities.

But although visible figures (Euclidean) are used in geometry for tangible figures, just as words are used in communication for things (there being no necessary connection between visible figures and tangible figures on the one hand, and words and things on the other), there is a difference between the relation of words and things on the one hand, and that of visible figures and tangible figures on the other. Whereas the relation between a word and a thing is variable and uncertain, depending on the arbitrary appointment of men, the relation between a visible figure and a tangible figure is relatively the same in all places (*NTV*,S. 152). A visible square, for instance, suggests to the mind the same tangible figure everywhere. But the tangible figure is not perceived through vision. It is perceived through touch and it is the object of touch.

The use of Geometry of Optics in Judging Distances*

In this article George Berkeley's methods for judging the distances of the objects have been accepted. But his methods can be accepted only when the methods of the writers on optics to judge distances are shown as unsatisfactory.

The distance, as it is generally agreed, is a line directed end-wise to the eye. But if it is so, it would project only one point in the fund of the eye, and that point would remain invariably the same, whether the distance is longer or shorter. Now, if the distance is what is suggested here, it cannot immediately be seen (Molyneux's *Dioptrics*, p. 113). For, if an observer sees an object at a distance, the observer invariably remains at one end of the gap between himself and the object (at which he looks at), and hence he cannot move to the object and see the gap between himself and the object (G.J. Warnock's *Berkeley*, 1953, pp. 23-24).

In view of the agreed fact that the distance projects only one point in the fund of the eye, and this point remains invariably the same, whether the objects may be near or far, many writers on optics felt the difficulty in estimating the distance of the objects. However, the writers on optics say that the distance of the objects may be estimated with the help of geometry of optics as follows:

(1) When we look at an object with both eyes, two straight lines (two optic axes) from the eyes concur at the object and they make an angle. Now, if the angle that is made by the two

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optic axes concurring at the object is greater, the object is estimated to be at a near distance: and if the angle that is made by the two optic axes concurring at the object is smaller, the object is estimated to be at a farther distance. Further, the writers on optics say that the greater angle is necessarily related to the near distance and the smaller angle is necessarily related to the greater distance.

(2) When an observer looks at an object with one eye, he judges the distance through diverging rays. That is, if he sees the object through most diverging rays, he judges it at a near distance, and if he sees the object through less diverging rays, he judges it at a remoter distance. The writers on optics also assume that there is necessary connection between diverging rays and distance.

Berkeley rejects the above methods of the writers on optics for estimating distances of the objects (*A New Theory of Vision*, SS.12-13). He says that the lines, angles, diverging rays, etc. are not at all perceived nor are they in truth ever thought of by the persons unskilful in optics and hence these unobserved phenomena cannot be accepted as the media for judging the distances of the objects. And if we accept these unobserved phenomena as the media for judging the distances of the objects, such judgments would be hypothetical and perhaps also untrue. Indeed, we cannot say that we perceive lines, angles, diverging rays, etc., which introduce in our minds the various ideas of distance.

Hence these unobserved phenomena are of no help at all in judging distances of the objects. Again, as the lines, angles, diverging rays, etc., are unobserved phenomena, we cannot agree with the writers on optics that there are necessary connections between these phenomena on the one hand and distances on the other.

Further, the lines, angles, diverging rays, etc., as mentioned in the geometry of optics, do not have any real existence in nature. They are the hypotheses framed by the mathematicians, who introduce them into optics in order to make the science of optics a geometrical science (*N.T.V.*, S. 14). On the above grounds, Berkeley rejects the estimation of distances through the imaginary lines, angles, etc. (*N.T.V.*, S. 15). And instead,

he advances his own novel methods for estimating the distances of the objects:

(1) When we look at a near object with both eyes, we alter the disposition of our eyes by lessening or widening the interval between the pupils, according as the object approaches or recedes from us. This turn or disposition of the eyes is attended with a sensation, which brings the idea of a greater or lesser distance into the mind (*N.T.V.*, S. 16).

Berkeley further points out that the sensations arising out of the turn of the eyes are only habitually, and not necessarily connected with the distances. And this is the reason that the observer no sooner perceives the sensations arising out of the different dispositions of the eyes, he at once perceives the different ideas of distance, which are habitually connected with the sensations (*N.T.V.*, SS. 17-18). If he had not perceived certain sensations arising out of the various dispositions of the eyes and distances constantly going together, he should not have suddenly made judgments concerning distances of objects (*N.T.V.S.* 20).

(2) If an object is placed at a certain distance from the eye, and if it is made to approach the eye, it is seen more confusedly. The nearer the object is brought to the eye, the more confused appearance it gives. Thus, the confused appearance of the object is the medium by which the mind judges the distance of the object. When the object appears confused, the distance of the object is nearer, and when the object appears less confused, the distance of the object is greater (*N.T.V.*, S. 21).

But the relation between confusion and distance is not necessary, it is merely habitual or customary. That is to say, greater confusion having been constantly attended with near distance, no sooner is the former perceived, it suggests to the mind the latter. On the other hand, lesser confusion having been constantly attended with greater distance, no sooner is the former perceived, it suggests the latter to our thought.

(3) If the object is placed at a certain distance and if it is made to approach the eye, we can prevent the appearances from growing more confused by straining the eye. In such case, the straining of the eye is taken help of to judge the distance of the object. If the straining of the eye is greater,

the distance of the object is nearer, but if the straining of the eye is not so great, the object is at a further distance (N.T.V., S.27).

But the relation between the straining of the eye and distance, as Berkeley points out, is merely habitual and not necessary. This is the reason that no sooner the observer feels the greater straining of the eye, he judges the distance of the object as nearer, and no sooner he feels the lesser straining of the eye, he judges the distance of the object as farther.

Summary:

From the above discussion it would be clear that the methods suggested by the writers on optics to judge distances are unsatisfactory mainly because they tried to judge distances through lines, angles, diverging rays, etc. But as these phenomena are unobserved, they cannot introduce into the mind of the observer the ideas of distance. On the other hand, the Berkeleian methods to judge distances are quite helpful because the Berkeleian means are observables. He suggests three means to judge distances:

1. Sensations arising out of the disposition of the eyes;
2. confused appearance; 3. straining of the eye.

Now, each one of these can be observed by the observer. And when the observer observes them, he can easily judge distance because the distance is habitually connected with each one of them. Another important conclusion also follows from this. When Berkeley says that the distance is judged by the sensation arising out of the turn of the eyes, by confusion and by straining of the eyes, he, in principle, means to say that distance is judged by the combination of the sensations of sight and touch. The sensations of sight and touch are so blended together that when we look at a distance, we think that we see distance through sight but it is a vulgar error and it is false. We see distance just as we see shame or sorrow in the face of others. But actually the distance is not perceived through sight. The primary importance of the sense of sight consists in the fact that it enables the observer to foretell sensation of touch, which the observer would receive if he were in close proximity to the object. The combination of these two kinds of sensations, however, depends on experience and habit. The sensation of sight and the sensation of touch have nothing in common, it is only habit which holds them together.

Berkeley's Theory of Perception and Error*

In A New Theory of Vision (1709) Berkeley works out his major theory that in perception the observers learn the habitual relationship between the arbitrary sign perceived through the sense organ and the object which is suggested by that sign. After having learnt the relationship between them the observers on perceiving the sign, can at once say that they are perceiving the object suggested by the sign, since the transition from the sign to the thing signified is very swift, sudden and unperceived. What Berkeley is trying to say is that the senses immediately perceive the signs and not the objects but these signs suggest the objects. It must however be remembered that to the observers the signs, immediately perceived through the sense organs, cannot suggest the objects unless they have learnt the habitual relationships between them.

Now the perception through any sense organ lies in correctly associating the sign perceived through the sense organ with that object with which the sign is habitually related through repeated perceptions.

Let me first take the visual perception. We look, for instance, at the moon, but by looking at the moon we simply perceive its figure, which acts as the sign suggesting the moon. It must, however, be noted that the visible moon can suggest the actual moon only if we have learnt the habitual relationship between them; and the habitual relationship between the visible

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moon and the actual moon can be learnt by repeatedly seeing the moon and thereafter by knowing the moon through the suggestion of the visible moon. And after we have learnt the habitual relationship between them, we can, on immediately perceiving the visible sign of the moon, know easily the object suggested by that visual sign.

Similarly, our sense of hearing immediately perceives the sign which is the sound, and the sound suggests the object, say a coach. The reason why sound suggests the coach is that a habitual relationship between them is formed in course of repeated perceptions. This means that the habitual relationship between a sound and the coach can be learnt only through repeated perceptions. Now after we have learnt the habitual relationship between them, we, at once, by hearing the sound know the coach. So swift, sudden and unperceived is the transition from sound to the signified object, coach, that we think that we hear the 'coach' but it is a vulgar error and it is untrue because we hear sound and nothing but—sound and not, the coach. Thus although we speak that we perceive the coach, the fact is that we perceive the sound and this sound suggests the coach because the sound and the signified object coach are habitually related.

Similarly our taste sense immediately perceives plate; and the plate is the sign, which suggests the object eaten. Now the habitual relationship between the plate and the particular object is formed only after repeated perceptions. For instance, if we eat pudding, what we immediately perceive through taste is the plate and this plate suggests pudding. And if we eat pudding several times, a habitual relationship is established between them and we learn that habitual relationship. And after we have learnt the habitual relationship between them, we, on immediately perceiving plate, can easily know through suggestion about pudding.

Similarly our sense of smell perceives smell only and not the rose. The smell is a sign and it suggests rose with which it becomes habitually connected by repeated perceptions. That is to say after perceiving smell several times and thereafter by knowing the rose through suggestion, we learn the habitual relationship between them. And after having learnt the habitual

relationship between the sign (smell) and the signified object rose, we can, on immediately perceiving the smell, easily know the suggested object rose.

Similarly our sense of touch immediately perceives hardness, roundness, etc., and they act as signs which suggest an object, say, sphere. Now if we perceive through touch, hardness and roundness several times, and know sphere through these signs, a habitual relationship between roundness and hardness on the one hand and sphere on the other hand is learnt by us. And because we have learnt the habitual relationship between them, we, on immediately perceiving the hardness and roundness, can know easily the suggested object, e.g., sphere.

Thus perception through vision or hearing or taste or smell or touch is the learning of the habitual relationship between the sense sign and the thing suggested by that sense sign. This means that perception is like learning language, because in language also we learn the habitual relationship between the words and the objects suggested by the words. Thus if it is true to say that by seeing the words we think about the objects suggested by the words, it is equally true to say that by perceiving the signs we think about the suggested objects.

From the above the following consequences may, therefore, be deduced.

1. Just as the persons, who have learnt the habitual relationship between the words and the things suggested by the words, know by reading the words the objects suggested by them, those, who have learnt the habitual relationships between the sense signs and the objects suggested by them would also know, on immediately perceiving, the sense signs, the objects suggested by them.

2. Just as linguists sometimes may make mistakes in the sense that they do not associate the words with the signified objects, so also those, who may have learnt the habitual relationships between sense signs and the things suggested by them, may not associate the perceived signs with the signified objects.

3. But just as the linguists may correct their mistakes by associating the words with the signified objects, so also those, who have learnt the habitual relationships between the signs

and the things suggested by them, may also correct their mistakes by associating sense signs with the signified objects.

The purpose of this discussion, however, is not to compare between the science of language and perception, and instead it is to point out that Berkeley's theory of perception not only leaves room for error but it also helps an observer to know truth.

Let us take visual error. Now according to Berkeley's theory of sense perception, the visible straight stick is habitually related to the straight stick. This means that the visible straight stick stands as sign suggesting the straight stick. But in a particular perceptual situation a straight stick appears bent, e.g. when a straight stick is partially immersed in water, it appears to sight as bent. Thus although a visible straight stick is the sign of a straight stick, in a special perceptual situation a visible bent stick is the sign of that straight stick, which is partially immersed in water. This being so, if a visible bent stick is regarded as the sign of that straight stick which is partially immersed in water, there is no error and the observer is not deceived and deluded. But if the observer regards that the visible bent stick is the sign of the bent stick, which is submerged in water, he is in error and hence he is deceived and deluded, since he does not know that a visible bent stick is the sign, suggesting the straight stick which is partially immersed in water. I should, therefore, think that Berkeley's theory of sense perception leaves room for error for the deluded and careless observer because he thinks that the visible bent stick (in certain perceptual situation e.g. when it is partially immersed in water) does not suggest the straight stick, rather it suggests the bent stick, which is not a fact. It would not be beside the point to say that even such observer would be able to know that the stick is straight by putting his hands on the stick down the water. Similarly on the Berkeleian theory of perception the visible sign of a single object suggests a single object, since normally a single object appears single to the eye. Thomas Reid in his *Inquiry into the Human Mind* (Ch. VI. S. 13), however, suggests various experiments which establish the phenomena of double vision, i.e. a single object appears double. For instance: if a candle is placed at a distance of ten feet from

the eyes and the observer held his finger between his eyes and the candle, it would be noticed that if he simultaneously attends to the finger and looks at the candle he would see two fingers but only one candle, and if he simultaneously attends to the candle and looks at the finger he would see two candles but one finger. Similarly, it has been pointed out by the psychologists in general and has been reported by Lord Bertrand Russell in *Our Knowledge of the External World* (1952, pp 93-4) that if an observer presses his eye ball and looks at a distant object, he would see two objects and not one. Now these experiments are open to any observer in any part of the world for verification, and it is certain that he would see a single object as two objects. This means that in special perceptual situations two visible objects are the signs of single object. Berkeley's sign theory, therefore, needs modification, because at least in these experimental situations the two visible objects are the signs of a single object. Thus if in these experimental situations, the observer, by seeing the two visible objects, thinks that they suggest two objects, and not one object, he is in error. But the observer can know truth by feeling the object and thereafter by interpreting his visual experiences in terms of his tactile experiences.

In the case of auditory perception, I have pointed out earlier that a sound suggests a coach to us only if we have learnt the habitual relationship between them and most certainly we cannot make any mistake. But that does not mean that there is no chance of making mistake at all. For, sometimes we may forget the habitual relationship between them and we may, on hearing sound, say that it is not the coach we are hearing but it is some other vehicle that we are hearing although in reality it is the coach that we are hearing. Thus in such circumstances we are in error but we can correct our error by remembering the Berkeleian system of truth and only if we are careless and helpless observers we shall be unable to find out truth. Let me illustrate this error with one more illustration. A stranger, who comes for the first time in Scotland, hears a yellow-hammer (a common song-bird in Scotland). The voice of the yellow-hammer resembles child's voice. The stranger however, is not acquainted with the voice of the yellow-hammer,

but he is indeed, acquainted with the child's voice. So when he hears the yellow-hammer singing, 'A little bit of bread but no cheese', he thinks that he is hearing child's voice because he has learnt the habitual relationship between sound and a child's voice and hence he is in error. As it is the bird that is singing and not a child who is speaking, the stranger is surely deceived. But if he is careful and listens patiently, he will discover his error; and he will know that it is a bird's voice; and only if he is careless, he shall be persisting in his error.

Let me now point out about olfactory error. It has been discussed above that by repeatedly perceiving smell and thereafter by knowing rose, we learn the habitual relationship between them. Hence, later on if we perceive smell, we at once say that the smell suggests rose and generally we commit no mistake. But sometimes it so happens that the observer forgets the habitual relationship between the sign, i.e., smell and the signified object, i. e., rose and hence he associates the perceived smell not with the rose but with some other flower and consequently he is in error. But in such circumstances also the observer may correct his mistake in the light of his past experiences, i. e., by remembering the habitual relationship between smell and rose established in the past.

Let me now say about gustatory error. Our gustatory sense, for instance, perceives plate and this may suggest, say orange juice, because a habitual relationship is established between the sign plate and orange juice, and hence later on whenever we perceive plate it at once suggests the orange juice. But sometimes we forget the habitual relationship between these two and upon perceiving plate we may wrongly associate plate with the object, say banana juice, and hence we are in error. However, we can correct our error by remembering the habitual relationship between plate and orange juice and hence by associating the plate with orange juice.

Lastly, I must say something about tactile error. The touch sense immediately perceives the feeling and this feeling suggests the object felt. Supposing one's leg is sore, and if one feels sore, this feeling is the sign suggesting the presence of the leg, which is sore. This is tactile perception. But if his leg is amputated and even then if he feels the pain and thinks that

the feeling of pain suggests a leg in front of him, he is deceived. This feeling, however, is temporary because he knows that there is no leg in front of him. This is comparable to a mirror puzzle: sometimes an observer by looking at the mirror thinks that there is another observer behind the mirror and consequently he may walk into the mirror. This impression, however, is temporary and he discovers his error by knowing truth that he is only seeing his own figure in the mirror. Touch sense also perceives numbers, say, one or two or three, and it is also true that the feeling of one object suggests one object and not two or three objects. Now when a person crosses a pencil between his two fingers, he perceives two pencils, but as the feeling of one pencil must suggest one pencil and not two or three pencils, and hence it is a tactile error. But the reason why the feeling of one pencil suggests two pencils is that two fingers are touching the pencil from its two sides. He can, however, discover his error and know truth if he cares to remember the habitual relationship between the feeling of one pencil with a pencil.

Berkeley's Solution of Sight-Touch Error

In this essay, it has been pointed out that Berkeley's theory of visuo-tactile perception, as mentioned in his *A New Theory of Vision* (1709), is helpful in solving the problem of sight-touch error. His theory of visuo-tactile perception is that vision perceives the object entirely different from the object which may be perceived through touch and yet both the objects perceived through the two senses become habitually related because of repeated perceptions, and hence whenever we perceive an object through vision, we immediately think about the suggested tangible object. For instance; an observer perceives through vision a tower as different from different positions but he perceives through touch the tower as relatively constant, and hence it is evident that a visible object is different from a tangible object. But by repeatedly perceiving the tower through vision and through touch, habitual relationship is established between these two different objects perceived through two different senses, and hence whenever in future one perceives the tower through vision, one immediately thinks about the tower which may be perceived through touch.

Before I use the above theory of Berkeley to solve the problem of sight-touch error, it is necessary to point out what is the sight-touch error, and what is its problem. A sight-touch error is that error which consists in perceiving one and the same object as two objects through two different senses. For

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instance : when a straight stick (if it is partially immersed in water) is perceived through vision as bent and when that stick in that position is perceived through touch as straight, it is a sight-touch error, since one and the same stick in the same situation is perceived through sight and touch as respectively bent and straight (G.F. Stout's *A Manual of Psychology*, 5 Ed 1983, pp. 442 Seq.). Similarly the visual perception of the parallel railway lines as converging at a distance but the tactile perception of these parallel railway lines as parallel is a sight-touch error, since the same parallel railway lines are perceived through vision and touch respectively as converging and parallel (J.J. Gibson's *The Perception of the Visual World*, 1950, pp. 35-6). Again the visual perception of a shell as a silver is reported by Prabhākara of the Mīmāṃsā School is a sight-touch error, because the same shell appears to vision as silver and to touch as a shell (C. Sharma's *A Critical Survey of Indian Philosophy*, 1960, P. 227).

Now the perception of the straight stick (when it is partially immersed in water) as bent and straight respectively through vision and touch is normal, common and usual, because any normal visual sense and normal tactile sense would most certainly perceive through vision a straight stick partly immersed in water as bent and through touch as straight. Also the perception of the parallel railway lines through vision as converging at a distance but the perception of the parallel railway lines through touch as parallel is normal, common and usual, because any normal observer with normal visual sense and normal tactile sense would most certainly perceive through vision the parallel railway lines as converging at a distance and would perceive through touch the parallel railway lines as parallel. Also these two errors admit of verification and provide conditions for the scientific study, because the perceptual situations of these two errors are normal, stable and repeatable. But unlike the previous two sight-touch errors, the perceptual situation of a shell as a silver is not constant, normal and repeatable and hence this error does not provide conditions for the scientific study. Again unlike two previous errors, the shell-silver error is not open to verification for each and every observer. But like the previous two errors, the shell-silver

error is a sight-touch error, because one and the same object, e.g. a shell, an Prabhākara says, is perceived through vision and touch respectively as silver and shell.

Now I give below the reasons generally advocated by the philosophers for the visual impressions of the objects as different from the tactile impressions of the same objects.

The Westerners say that the straight stick (when partially immersed in water) appears bent to the eyes, because two types of light waves—one type from the part of the stick above water and another type from the part of the stick below water, strike the eyes, and these two types of light waves make the appearance of the straight stick bent (*The New Realism*, 1912, pp. 303 sq.; pp. 480—2). This reason for the visual appearance of the straight stick (when partially immersed in water) as bent may be accepted. But since that very stick in that very situation is perceived through touch as straight, the question arises: why must the stick be perceived straight? The reply is that the stick is perceived straight through touch, because when it is perceived through touch it is not perceived through hypothetical entities, like rays, light waves, etc, but it is perceived through experience of handling (Molyneux's problem *N.T.V.S.* 132). Similarly it may be said that the parallel railway lines appear to the eyes as converging at the remote distance because when the parallel railway lines are looked at by the observers, they perceive them through hypothetical entities, like, rays light waves, etc. Here again the reason for the perception of the parallel railway lines through vision as converging may be accepted. But since the parallel railway lines are perceived parallel through touch, the question is, why must the same parallel railway lines are perceived parallel through touch? The reply is that parallel railway lines are perceived parallel because when they are perceived through touch, they are not perceived through hypothetical entities; like, rays, light waves, etc., but they are perceived through experience of handling.

Further different Indian Philosophers give different reasons for the perception of a shell as a silver, but I give below only the reasons advanced by Prabhākara of the Mīmāṃsā School for the perception of a shell as a silver, since he and his followers think that a shell is perceived through vision as a

silver but a shell is perceived through touch as a shell.

According to Prabhākara a shell visually appears to the observers as a silver because of non-distinction on their part between a perceived shell and a remembered silver or *akhyāti*; in other words the observers mix up the perceived shell and the remembered silver into one psychological act and they say that "This (shell) is a silver". But against Prabhākara it may be said: "how can there be non-distinction between a thing that is perceived and a thing that is remembered"? And supposing if there is non-distinction between these two cognitions, why should the non-distinction between them lead to the perception of a silver only for the moment the error lasts? Prabhākara never felt the immediate need of answering this question. He concerned himself more in criticising his opponents and never looked into the mistake of his own theory. But perhaps he should have answered this question by saying that the non-distinction between the perceived shell and the remembered silver leads to the perception of a silver only for the moment the error lasts, because so long as there is perception of a silver there is also non-distinction between these two cognitions in the mind of the observer, and the moment the truth is known by the observer, there is no non-distinction between the perceived shell and the remembered silver in his mind and instead there is only the knowledge of the perception of a shell in his mind. And the shell, as Prabhākara admits is perceived as a shell through touch. In this connection it must be said that when an observer perceives a shell through touch, it is evident that he perceives it through his past experience and he seldom makes a mistake, only if he is careless and has forgotten his experience of a shell he can make a mistake; such mistake, however, is only momentary, because he can recall his experience of a shell.

Now my reader may or may not accept the reasons for the visual perceptions, of the straight stick (when it is partially immersed in water) as bent, of the parallel railway lines as converging, and of a shell as a silver, as also for the tactile perceptions, of the straight stick (even when it is partially immersed in water) as straight, of the parallel railway lines as parallel, and of a shell as a shell. But my reader would

hardly doubt the *facts*, e.g. the sense of vision perceives a straight stick (when partially immersed in water) as bent, the parallel railway lines as converging and a shell as a silver, and the sense of touch perceives a straight stick (even if it is partially immersed in water) as straight, the parallel railway lines as parallel and a shell as a shell. And if my reader has any doubt about the truth of these facts, he is free to verify the truth of these facts with the help of his own perceptions, and I am sure he will be convinced about the truth of these facts. Thus if the sense of vision perceives a straight stick (when partially immersed in water) as bent, the parallel railway lines as converging and a shell as a silver and the sense of touch perceives a straight stick (even if it is partially immersed in water) as straight, the parallel railway lines as parallel and a shell as a shell, the question is where is the problem of error in these perceptions. My own view is there is no problem of error in the visual perception of a straight stick as bent or in the visual perception of the parallel railway lines as converging or in the visual perception of a shell as a silver, equally there is no problem of error in the tactile perception of a straight stick as straight or in the tactile perception of the parallel railway lines as parallel or in the tactile perception of a shell as a shell. There is problem of error only when by perceiving through vision a straight stick as bent or the parallel railway lines as converging or a shell as a silver the observer thinks that he would also perceive through touch a straight stick (when partially immersed in water) as bent, the parallel railway lines as converging and a shell as a silver. In short, the problem of error lies in thinking that, that which is perceived through vision can also be perceived through touch. And if so, the solution of error would be in thinking that, that an object perceived through vision is not perceived through touch; that is to say, the solution of error would lie in thinking that, that a straight stick, perceived through vision as bent, is not perceived as bent through touch or in thinking that the parallel railway lines, perceived through vision as converging, are not perceived converging through touch or is thinking that a shell, perceived through vision, as silver is not perceived as a silver through touch. In short, the solution of

the problem of error lies in thinking that, that which is perceived through vision is different from that which is perceived through touch and yet the two different perceived objects of the two different senses are habitually related as the sign and the thing signified, and hence whenever in future one perceives a sign through vision, one immediately thinks about the signified tangible object.

After having indicated the problem of sight-touch error and its possible solution, I think that Berkeley's theory of visuo-tactile perception provides the necessary preliminary steps to solve the problem of sight-touch error. Berkeley clearly points out in his *A New Theory of Vision* (1709) and later on in *The Three Dialogues between Hylas and Philonous* (1713) that vision perceives a different object from the object perceived through touch and yet the visible object is related to the tangible object, as the sign and the thing signified. When his confidence grew stronger in this type of theory, he defends it in *The Theory of Vision Vindicated and Explained* (1733). The object perceived through vision is only the sign of that suggested object, which may be perceived through touch. By repeatedly perceiving an object through vision and thereafter by knowing the suggested object, a habitual relationship is established between them, and later on whenever an observer perceives a sign, he at once knows the suggested object. The relationship between the sign and thing signified is like the relationship between the words and the objects suggested by the words. Just as by perceiving the words one knows the objects suggested by these words, similarly by perceiving the signs the observer knows the objects suggested by the signs. Berkeley's theory, therefore, can solve the problem of sight-touch error. In terms of Berkeley's theory visible bent stick is the sign suggesting the object, straight stick, which may be perceived through touch. By repeatedly perceiving the visible bent stick and thereafter by knowing the suggested object, a straight stick, through touch, a habitual relationship is established between them, and hence whenever in future one sees a bent stick (in water), one at once knows that it suggests the straight stick. Only rarely one forgets this relationship between the visual sign and the thing suggested by that visual sign, and hence only rarely one does not

know truth. Similarly the visually perceived converging railway lines are the signs suggesting the parallel railway lines, which may be perceived parallel through touch, and by repeatedly perceiving the visible converging railway lines and thereafter by knowing the parallel railway lines a habitual relationship is established between them and hence in future whenever an observer sees the visible appearance of the converging railway lines, he at once knows that the railway lines are parallel and hence he knows the truth. Similarly a visually perceived silver at the sight of shell is the sign suggesting a shell, which may be perceived through touch, and by repeatedly perceiving through vision a shell as a silver and through touch a shell as a shell a habitual relationship is established between them and hence whenever we perceive a silver at the sight of a shell, we immediately know about a shell.

Thus Berkeley's theory of visuo-tactile perception is helpful in solving the problem of various types of sight-touch error.

The Heterogeneity of Sight and Touch

In this paper Berkeley's pioneer theory of the heterogeneity of sight and touch, which not even a Greek had thought of, has been discussed and defended. The Berkeleian thesis is that the objects of sight are different from the objects of touch, but as Berkeley points out, the visible objects, in course of experience, become habitually related to the tangible objects, and hence the observers, merely by experiencing the visible objects, know the tangible objects, for the simple reason that both of them are habitually related.

It has, therefore, been found necessary to discuss towards the beginning of the paper the Berkeleian distinction between the visible and tangible objects, and later on towards the end of the paper to say that because the visible and tangible objects are habitually related just as the signs are habitually related to the things signified, the observers, merely by looking at the objects, can know the tangible objects.

It has been stated that the common opinion is that the objects perceived through sight and the objects perceived through touch are one and the same, eg. the stick perceived through sight and the stick perceived through touch are one and the same. But this so-called common opinion, as Berkeley points out, is unfortunately not really the common opinion. By taking large number of illustrations in *Philosophical Commentaries* (1944), *A New Theory of Vision* (1709) and the *Theory of Vision Vindicated and Explained* (1733) Berkeley's

only aim is to correct the vulgar error, that the object perceived through vision and the object perceived through touch are one and to reinstate the actual common opinion that the object perceived through vision and the object perceived through touch are two. If the general theory that the sense qualities perceived through vision and the sense qualities perceived through touch are accepted as two different qualities, Berkeley becomes entitled to proceed on with his major thesis that, that which is perceived through vision is different from that which is perceived through touch. In the context of sense qualities of one sense organ being different from the sense qualities of another sense organ, Berkeley can confidently say that the table which we see is different from the table which we feel, or the pen which we see is different from the pen which we feel, because the visible table or pen is some patch of colours but the tangible table or pen is not some patch of colours and hence the former is different from the latter.

Later on when Berkeley's confidence in the theory of the heterogeneity of the visible object and tangible object grew stronger, he incorporates this problem for discussion in his various works. It would be useful, if not quite accurate, to refer to some of his works.

In *Philosophical Commentaries* No 49, Berkeley says that the visible distance is different from the tangible distance; in *PC* Nos 70, 295 and 441 he points out that the visible extension is different from the tangible extension. These references, although incidentally made, are clear enough in pointing out the distinction between the visible and tangible objects. But in *PC* No. 136 Berkeley says more clearly:

"Wt can we see beside colours. wt can we feel beside, hard, soft, cold, warm, pleasure, pain."

Again in *PC* No. 226, Berkeley says:

"Wt I see is only variety of colours & light.

Wt I feel is hard or soft. hot or cold, rough or smooth & c. wt resemblance have these thoughts with these?"

Further in *PC* No. 227 Berkeley says :

"I cannot therefore conclude that because I see 2 I shall feel 2, because I see angles or inequalities I shall feel angles or inequalities."

And in *PC* No. 28 Berkeley regards the visible motion as different from the tangible motion. *For he says:

"Motion, figure extension perceivable by sight are different from those ideas perceived by touch which goes by the same name."

Berkeley carries the distinction between visible object and tangible object from *PC* to *A New Theory of Vision*. For in *NTV* (S. 103) he says:

"That which I see is only variety of light and colours. That which I feel is hard or soft, hot or cold, rough or smooth."

And in *NTV* (S. 49) he says:

"But if we take a close accurate view of things, it must be acknowledged that we never see and feel on and the same object. That which is seen is one thing, and that which is felt is another.....The true consequence is that the objects of sight and touch are two distinct things."

Also in *NTV* (S 137) Berkeley discusses the heterogeneity of visible motion and tangible motion, and in *NTV* (138) he adds the consideration of motion may furnish a new field for enquiry. The enquiry to some extent is found in *The Principles* (S 97, 102-5 110-16) but the promise of enquiry was never fulfilled till *De Motu* was published.

An anonymous writer, attacked Berkeley's distinction of visibles and tangibles in *The Daily Post-boy*** of the 9th September, 1732. Berkeley had, therefore to write *The Theory of Vision Vindicated and Explained* in 1733. In this work he defends his theory of distinction between visibles and tangibles more vigorously and with greater confidence.

Professor A.D. Ritchie approves of Berkeley's distinction between visible and tangible objects. He says in his *Studies in the History and Methods of the Sciences* (1958, p 210) as follows:—"... Under normal conditions all cubes both look and feel cubic, and all spheres both look and feel spherical. That rule

*The world had to wait till 1851 for Foucault's pendulum, first demonstrated in Paris for direct ocular evidence of the earth's rotation. Indeed it is an interesting story but not needed in the context (*The Encyclopaedia Britannica* II Ed., Vol. X, 1910, P. 734).

**Fraser (1871 Ed only) commits the mistake of calling it *Dublin Post-boy*.

once found (synthetically established) cannot be unfound (analysed away) and admits of no exceptions. For all that, what is seen what is grasped are different."

From the above references to Berkeley's works, it is perfectly clear that the visible objects are different from the tangible object. For instance the visible distance is different from the tangible distance because whereas the 'visible distance' varies according as the position of the observer, the 'tangible distance' is relatively constant; the 'visible extension' is different from the 'tangible extension' because the 'visible extension' of an object is variable according as the object is looked at by the observer from different positions, the 'tangible extension' is relatively constant; the 'visible figure' is different from the 'tangible figure', because whereas the former is variable, the latter is relatively constant; the 'visible number' say 1 or 2 or 3 is different from the 'tangible number' say 1 or 2 or 3 because the former is variable but the latter is relatively constant.*

It must, however, be remembered that although the visible objects and the tangible objects are different and distinct, they are habitually related. That is to say the 'visible distance' is habitually related to the 'tangible distance'; the 'visible extension' is habitually related to the 'tangible extension'; the 'visible number', say 1 or 2 or 3, is habitually related to the 'tangible number' say, 1 or 2 or 3. Berkeley thinks that the 'visible objects' are habitually related to the 'tangible objects' just as the signs or words are habitually related to the things signified by the signs or words. That is to say, just as the perception of signs or words lead to signified objects, so also whenever we notice the 'visible distance', it leads us on to the

*Invariable tangible objects—Berkeley seems to suggest that whereas the visible objects are variable, the tangible objects are constant. But Berkeley's theory regarding the constancy of the tangible objects has not been accepted as true; since it has been pointed out against Berkeley that a penny pressed against the back feels smaller than when held in the hand and much larger when held in the mouth. Berkeley however, is not concerned to deny that kind of thing: he merely says that the tangible objects, when felt or handled by the same organs in the same way, are approximately constant, whereas the visible objects are not constant at all but vary in a regular way according to (tangible) conditions.

'tangible distance', since the former stands as sign to the latter or whenever we notice the 'visible extension' it leads us on to the 'tangible extension' since the former stands as sign to the latter or whenever we notice the 'visible figure' it leads us on to the 'tangible figure' since the former stands as sign to the latter or whenever we notice the 'visible number' say, 1 or 2 or 3, it leads us on to the 'tangible number', say, 1 or 2 or 3, since the former stands as sign to the latter. Again just as the sign relationships between the words and the objects denoted by the words are universal, so also the sign relationships between the visible objects and tangible objects are universal. And if the sign relationships between the visible objects and tangible objects are universal, the noticing of the visible objects would lead to any observer to the tangible objects of the same name in any part of the world. So, swift, sudden and unperceived is the transition from the visible objects to the tangible objects that we think that we perceive the tangible objects through vision but this notion is erroneous. The real fact is that our eyes perceive the visible objects, but these visible objects lead us on to the tangible objects which although are perceptible through touch but are related to the visible objects through habits.

In Defence of Berkeley's Non-distinction between Primary Qualities and Secondary Qualities*

The thesis that has been expounded in this paper is that if one accepts Locke's distinction between Primary qualities and Secondary qualities, one has to accept the realities of matter and mind, but if one accepts Berkeley's non-distinction between these two qualities, one must also accept the reality of mind and its ideas.

Locke in his *Essay Concerning Human Understanding* (Bk. 2, Ch. 8) says that there are two types of qualities : Primary qualities and Secondary qualities. The Primary qualities are : extension or shape, motion, solidity, etc. The Secondary qualities are : colour, sound, taste, etc.

The Primary¹ qualities, as Locke says, are in the matter. This being so, their existence does not depend on the perceiver. Whether or not the perceiver perceives them, they exist. But if the perceiver perceives them, these qualities as he says, resemble the Primary qualities, which are in the matter.² Thus Locke seems to guarantee the existence of matter.

But whereas according to Locke Primary qualities are in the matter, the Secondary qualities are dependent on the observers and hence they are in the mind.³

The Secondary quality, say colour, is, according to Locke, dependent on the observers, because one and the same colour

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appears different to different observers. Hence colour is in the mind of the observers. For if it were not in the mind of the observers, one and the same colour would not have appeared different to different observers.

Locke says that another Secondary quality, namely sound, is in the mind. This is proved by the fact that one and the same sound is heard more loudly by the nearer observer but not so loudly by the distant observer. If the sound were not in the mind and instead, if it were in the object, it would have appeared same to the different observers.

Similarly taste, as Locke admits, is in the mind. Had the taste, say, sweet been not in the mind but in the object, say, sweetmeat, its sweet taste would have been perceived by all the persons taking sweetmeat alike. But it is not so. The sweetmeat is not so sweet to those who eat it daily but it is relatively more sweet to those who eat it rarely and it is very sweet to those who eat it for the first time. It may, therefore, be inferred that the taste of sweetmeat is not in the sweetmeat but it is in the mind.

From the above it is clear that each one of the above Secondary qualities exists in the mind. Hence mind exists. Thus the distinction between Primary qualities and Secondary qualities leads Locke to accept the existence of matter and mind.

Against Locke, Berkeley points out that there is no distinction between Primary qualities and Secondary qualities.⁴ He accepts Locke's theory that Secondary qualities are mind dependent but he says that the argument which makes Secondary qualities as mind dependent that very argument also makes Primary qualities as mind dependent.

Berkeley takes up the Primary qualities of Locke, say, extension or shape, motion, solidity, etc, and he shows that each one of these qualities is observer dependent and is, therefore, in the mind.

Berkeley asks : Is extension or shape in the matter or is it dependent on the observer? His answer is that the extension or shape depends on the observer. He argues that if extension or shape were in the matter, each observer would have percei-

ved the same shape or extension. But it is not so. Is it not a fact that one and the same extension or shape appears different to different observers? A mite sees its own leg or an object like its leg as a fairly large object but the human eye sees the mite's leg or an object like that as a point only. If there is a creature smaller than a mite, it would see the mite's leg comparatively larger than what mite may have seen; and if there is a creature still smaller, it would see mite's leg like a mountain. Thus one and the same extension or shape would appear different to man, mite and creature smaller to mite. This means that extension or shape depends upon perceiver. Hence it is in the mind and not in the matter, because if it were in the matter, all creatures could not have seen the extension or shape different, and instead they would have seen the same extension or shape. Again one and the same extension or shape appears small, smooth and round to one eye but that extension or shape appears large, rough and angular to the other eye. Further, the shape or extension seen through the naked eye is different from the shape or extension seen through some microscope on the eye. These illustrations show that shape or extension is dependent on the observer and hence it is in the mind.

Berkely can say off hand that motion is dependent on the observer. For instance: on a moving train if a passenger looks outside the window, the train appears to him to be moving very fast but if he looks inside the compartment the train seems to him to be stand still. Hence the same motion of the train appears fast as well as slow. This, therefore makes, quite clear that motion is dependent on us. Had the motion been in the train, it would not have appeared both fast and slow.

Regarding solidity, Berkeley thinks that it is nothing but hardness or resistance. Now hardness or resistance is dependent on the observers. The object which appears hard to some animals, that very object appears soft to others, whose limbs are stronger. This also proves that solidity is dependent on the observers and hence it is in the mind.

Berkeley, therefore, concludes that Locke's Primary qualities, like his Secondary qualities, are relative to the observers and hence both these qualities are in the mind. Both these qualities,

as Berkeley insists, are one and the same. If the two were different, taste, which is a Secondary quality, would have been thought different from shape which is a Primary quality and vice versa. In the same way, extension which is a Primary quality, should have been thought different from colour, which is a Secondary quality, and vice-versa. But it is impossible to think shape different from taste and taste different from shape; similarly it is impossible to think colour different from extension and extension different from colour.

Berkeley after demolishing the distinction between Primary qualities and Secondary qualities, attacks the very basis on which Locke distinguished Primary qualities from Secondary qualities. Locke said that because the Secondary qualities are dependent on the observers, they are in the mind and hence mind exists. But although Primary qualities, as he said, are perceived, the perceived Primary qualities resemble the Primary qualities which are in the matter and the matter exists.

Berkeley thinks that Locke is justified in accepting the existence of mind through the Secondary qualities. But Berkeley points out that Locke is not justified in accepting the existence of matter through the Primary qualities.

Berkeley says that we know the Primary qualities only when they are perceived; we have no means of knowing that they exist in the matter; we do not know any method by which we can confirm that the perceived Primary qualities resemble the unknown and unknowable Primary qualities in the matter (if they are really there). Berkeley, therefore, accepts only one aspect of Locke's Primary qualities, namely, that the Primary qualities are perceived, and he argues that if they are perceived, they depend on the observers and for this reason alone the Primary qualities are on par with the Secondary qualities. Berkeley tells us that just as the Secondary qualities, e.g. colour taste, sound, etc. are dependent on the observers, the Primary qualities, e.g. extension or shape, motion, solidity, etc., are also dependent on the observers and hence both are same.

Now if we would have believed in Locke's distinction between Primary qualities and Secondary qualities, we may have believed in the existence of matter and mind both, but as we defend

Berkeley's non-distinction between Primary qualities and Secondary qualities, should we defend the existence of mind and its ideas only and reject matter? Or is there any other sense in which matter is to be retained?

The matter has been accepted in two senses : the philosophical sense and the common sense. In the philosophical sense, matter is the substratum or support of the Primary qualities. But this view is not free from contradictions. For if the Primary qualities are perceived, they are relative to the observers and hence they are known and there is, therefore, no sense in describing matter as the unknown support of the Primary qualities, because the Primary qualities are known and this being so, how can matter be unknown support of the Primary qualities? Even then if we believe that the matter is the unknown support of the Primary qualities, we are not sure of that which is unknown, because that which is unknown may have no existence either. The matter, which is unknown substratum of Primary qualities, and because of that beyond the range of perception, cannot be guaranteed any existence. In common sense matter is that which is perceived. In this sense matter exists. But if matter is perceived, it is to be perceived through eye, touch, taste, hearing and smell. And if matter is perceived through the above mentioned senses, matter is nothing but the association of ideas, because the senses can perceive only ideas. Thus if matter is accepted as the association of ideas, such matter does really exist and Berkeley seems to accept such matter. Now association of ideas is possible only in a mind and hence Berkeley accepts mind and its ideas.

Hence by accepting the Primary qualities and Secondary qualities as two, Locke is forced to accept the reality of mind and matter. But Berkeley, by accepting these two qualities as one, comes to accept the reality of mind and its ideas. The mind⁵ exists because it has before it ideas of senses which are created by God and the other reason why mind exists is that it can create ideas as well, e.g. the ideas of memory. The ideas exist because they are perceived by the mind.

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4. *The Principles* SS9-11; *The Dialogues*, Frazer Edition, Voi. 1; pp. 278 sqq.
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The Conceptual Error¹

A conceptual error is an error that usually employs class-concepts, makes minimum use of percepts and refers only incidentally to a particular perceptual situation. For instance: the perception of a rope as a snake is a conceptual² error, since rope and snake are taken as conceptual terms and not as perceptual terms, yellow, hard, bent, straight, etc., the two class-concepts rope and snake refer to the same object and there is only incidental reference to particular perceptual situations or the relation between them. This should be clearer when put as follows: when I say, 'This is a snake' and later, 'This is a rope' my two visual experiences refer to the same object (say a rope). This error makes minimum use of percepts, say of a snake or of a rope but it makes maximum use of general concepts, say, of the rope and of the snake and it refers to perceptual situation only incidentally, say to a situation where the light is bad, such that the object is not clearly recognized. Also there is contradiction between these two different assertions because the two different assertions are about the same object in the same situation. The error or illusion comes in because I have forgotten the visible characteristics of a snake and a rope and I cannot persist in my

1. Published in *Indian Philosophy and Culture*, Vrindaban, U.P., June-September, 1967.

2. S. Radhakrishnan thinks that perception of a rope as a snake is an error (*Indian Philosophy* Vol. II 1931 p. 569). He, however, does not think that the perception of a snake as a rope, is also an error, because the visible characteristics of a snake are not present in a rope and he seems to be right.

error as well as I cannot take the risk of correcting my error through touch, because I think if the object is really a snake, I may get bitten and if the object is a rope I may be caught in a trap.

As against a conceptual error, a perceptual error is an error that makes maximum use of percepts and applies necessarily to a particular perceptual situation. For instance: the perception of a straight stick (when it is partially immersed in water) as bent is a perceptual error,³ because it makes maximum use of percepts and minimum use of concepts (in this case only straight and bent) and because it occurs in a particular perceptual situation. This would be clearer when put as follow: when I say, 'This stick looks bent' as it is partly in water and later 'This stick looks straight' as it is out of water, my two visual experiences refer to the same stick while in two different situations. This error makes maximum use of percepts, minimum use of concepts, does use class concepts and applies to a particular perceptual situation, i.e., it is perceived bent only if the part of it is in water. Also there is no contradiction between two different situations in which the stick is perceived, i.e., out of water and in the water. The two different assertions are about two particular situations, which need not be described. No description or conceptual accounts of the stick is needed, the only necessary concepts are straight and bent. Error or illusion comes in only if the first situation leads me to anticipate the second situation wrongly, i.e., if I anticipate that because the straight stick that is partially immersed in water looks bent, the stick will also look bent when it is out of water.

But the above distinction between a conceptual error and a perceptual error is only verbal.

3. George Berkeley thinks that the perception of a straight stick (if it is partially immersed in water) as bent is an error (*Three Dialogues between Hylas and Philonous*, Nelson's Edition Vol. II, 1949, P. 238) He, however, thinks, that the error lies in thinking the 'visible bent stick', as related to the tangible straight stick. But if the 'visible bent stick' and the 'tangible straight stick' are thought to be different and distinct there is no error at all. I think his interpretations are quite correct and akin to commonsense.

The real points of distinction between these two errors are as follows : while a perceptual error is true for all, a conceptual error is not true for all, since each and every observer sees a straight stick (when it is partially immersed in water) as bent but all observers do not see a rope as a snake. Further the situation of perceptual error, being stable and repeatable, each observer can verify whether or not a straight stick appears bent and hence it is analysable into percepts and concepts and this being so, it provides conditions for scientific study, but the situation of a conceptual error, being transient, unstable and unrepeatable, each and every observer cannot verify whether or not a rope appears as a snake and hence it is not analysable into percepts and concepts, and this being so, it does not provide conditions for scientific study.

In this article my intention is not to discuss about perceptual error, say, perception of a straight stick (when it is partly in water) as bent, for this is not an important error, no body is deceived by this error, and perhaps no body even takes notice of this error unless it is pointed out to him, and instead my intention is to point out why for some observers there is conceptual error and why for some other observers, there is no conceptual error, in other words my intention is to point out why to some observers a rope appears as a snake and why to some others a rope does not appear as a snake.

I am of the view that some observers see a rope as a snake for the following reasons.

The erring observers have in their mind the emotional fear of a snake-bite resulting in the death, and hence at the sight of a rope they become afraid of a snake, and a rope is taken as a snake. But they may not take a rope as a snake if they are familiar with the concepts of a rope and a snake. They can only take a rope as a snake if they do not possess the full conceptual accounts of a rope and a snake and hence are unaware of the concepts of a rope, being different from the concepts of a snake. Thus emotional fear as well as ignorance about the concepts of a rope and a snake make the observers see a rope as a snake.

On the other hand the observers who are not under emotional fear of a snake-bite, and who possess full conceptual

accounts of ropes and snakes will not ordinarily take a rope as a snake.

But how do we know that some observers take a rope as a snake while others take a rope as a rope? Just by watching that their behaviours correspond to a situation.

Suppose an individual, say 'A' looks at a rope in a perceptual situation, and if there is no change in his behaviour as a result of looking at the rope, in the sense that 'A' does not stop and does not walk away from the situation, I should think that 'A' takes a rope as a rope. But suppose another individual, say 'B' looks at the same rope in the same situation and if there is change in his behaviour as a result of looking at the rope, in the sense that 'B' stops and walks away from the situation, I should think that 'B' takes the rope not as a rope but as a snake. But this is not true.

The fact that 'B's behaviour does not correspond to the situation is no guarantee that he thought a rope as a snake; B's behaviour may not correspond to the situation i.e., he may stop and walk away from the situation because he may have thought a rope as a trap. Also even if A's behaviour corresponds to the situation he may still be in error. 'A' may not walk away from the situation and he may pick up the rope either thinking it a harmless snake or knowing how to handle a poisonous snake.

Thus I cannot say that 'A' perceives a rope because I see that his behaviour corresponds to the situation and also I can not say that 'B' perceives a rope as a snake because I see that his behaviour does not correspond to the situation. Only knowledge of the real situation can make 'A' to perceive a rope as a rope; and only ignorance about the real situation can make 'B' to perceive a rope as a snake.

I, therefore, conclude that the observers, who have the knowledge of the real situation, would perceive a rope as a rope, and the observers who do not have knowledge of the real situation, would perceive a rope as a snake.

This means those observers, who do not perceive a rope as a snake, are not in error and hence there is no question for them to remove their error. But those observers, who do perceive a rope as a snake, are in error, and hence there is need for them

to remove their error. Hence the question is how must those latter observers remove their error and know truth?

The following methods may be employed by the observers to avoid error or to know truth.

The observers can know truth in the first place by getting rid of the fear of a snake-bite. But how must they remove their fear? Perhaps through touch. As the object is a rope, there is no danger in handling it, and by handling the object, they can check their visual experiences. But the trouble is that the rope may be a trap and hence there is the danger to fall into a trap. This means that although the fear of a snake-bite may be eliminated, the fear of falling into a trap may not be eliminated.

The observers can know truth in the second place by becoming familiar with the full conceptual accounts of ropes and snakes. But full conceptual accounts of ropes and snakes cannot be possible without studying different species of ropes and snakes and there are hundred species of ropes and snakes.

The observers can know truth in the third place by verifying the object. But verification is possible only if the perceptual situation in which a rope appears as a snake, is stable, repeatable, and analysable. But as the perceptual situation in which a rope appears as a snake is unstable, unrepeatable, and unanalysable, no verification is possible and hence the mistake cannot be avoided.

In short through the above methods the observers cannot avoid a conceptual error i.e. perception of a rope as a snake. However this error can be avoided by the following method.

We know that the erring observers, although are not experts on ropes and snakes, yet they know in general terms the visible characteristics of a snake and also of a rope; they know that a snake is an animal that crawls or wriggles on the ground, hisses when disturbed, rears its head and strikes, and often gives poisonous bites; and they also know that a rope has none of these characteristics of a snake, and instead has positive characteristics that no snake has. But as they have forgotten the visible characteristics of a snake and a rope and as they do not like to persist in error and correct their error through touch because of the risk of being bitten by the snake (if it is a snake)

or because of the risk of falling into trap (if it is a rope), they are in error; this being so, if they can remember the characteristics of a snake and a rope, they can avoid error and know truth.

If we admit this, it would be easier to accept that the observers under emotional fear fail to remember the visible characteristics of a snake and of a rope and so they are unable to distinguish between a rope and a snake and hence they take a rope as a snake. But slightest control over emotional fear on the part of these observers would make them remember the distinctions between the visible characteristics of a snake and of a rope and if they remember the distinctions between the visible characteristics of a rope and of a snake, they are out of error and on road to truth. They will recognise if the object is a rope or a snake.

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The Sign Theories of Perception*

In *A New Theory of Vision* (1709) and *The Theory of Vision Vindicated and Explained* (1733) George Berkeley expounds a new kind of perceptual theory e.g. vision in the sign of touch and he also keeps open the possibilities for framing the various other sign theories, each sign theory, being between any two senses.

The theory that vision is the sign of touch may be illustrated as follows: when we look at an object, the visible object is the sign signifying the tangible object, which can be perceived by touch. For instance when we look at a distant house, the visible house is the sign signifying the tangible house, which can be perceived by touch.

Now as Berkeley admits that the visible object is the sign of the tangible object, the implication is that Berkeley thinks that the visible object signifies the tangible object which is at a distance (*NTV*. S. 147). This means that while the object of sight is in some sense in the mind and is not at a distance, the object of touch is not in the mind and is at a distance. Berkeley had already implied this by remarking that the magnitude of the object, which exists without the mind and is at distance, is always the same (*NTV*. S. 3) and by contrasting this external and tangible object with the visible object. The object of sight, however, can act as sign or symbol of the tangible object (outside the mind) since the sign and the thing signified are habitually related.

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The reason why Berkeley talks only about the theory that the visible object is the sign of tangible object is that he needs only that theory (any way in the *NTV* at least). But we can frame several other sign theories on the Berkeleian line, each sign theory, being between any two senses. For instance: hearing is the sign of touch, for when we hear the sound of a coach the sound is the sign signifying the coach, which can be perceived through touch (*NTV*. S. 46).

Again smell is the sign of touch; for instance, when we smell a rose, smell is the sign of the rose, which can be perceived through touch.

Further taste is the sign of touch; for instance, when we taste fruits salad, the taste is the sign signifying the fruits, which can be perceived through touch.

Now a question arises: if each sense is the sign of touch, and if touch is not the sign of any sense, does it not amount to giving importance to touch over other senses? Certainly not! Berkeley talks (incidentally perhaps) in the *NTV* and in his other *Works* that tangible object is also the sign of visible object. Molyneux's blind observer, for instance, supports this theory (*Philosophical Commentaries*, No. 32). Molyneux's blind observer learnt to distinguish (when he was blind) between a cube and a sphere by touch alone (*NTV*. S. 132). But when both the cube and sphere were placed before him once, he all of a sudden gets sight. As a result of this he gets new visual experiences of the cube and sphere. But he fails to distinguish between them by vision alone. Later on when he is habituated to use his sight, he is able to distinguish between a cube and a sphere by vision. He learns the use of vision and touch so much so that by touching the object (by closing his eye), he can infer visible object. Hence tangible object, for him, is the sign of visible object. And Berkeley thinks that Chesselden's patient (*TVV*. SS. 70-1, Nelson Ed. Vol. 1, 1948, pp. 275-6) provides experimental evidence to his theory. This patient, before his operation of cataract, used his sense of touch to know the objects. Later on after his operation he immediately failed to know the objects through vision alone. But after having learnt the use of vision, he had no difficulty in knowing the objects through vision. He thus becomes acquainted with

both the tangible objects and visible objects so much so that even if he knows the tangible objects (by closing his eye), he can infer the visible objects. Professors A. A. Luce and T.E. Jessop also think that if the visible objects are the signs of tangible objects, the tangible objects are also the signs of visible objects.

"If it be true that colours, the immediate objects of sight, are signs of coming or possible objects of touch, it is no less true that roughnesses, etc., the immediate objects of touch, are signs of coming or possible objects of sight. Sauce for geese is sauce for gander, and a one-way relation between senses so intimately blended is impossible (*The Works of George Berkeley*, Nelson. Ed. Vol. I 1948, p. 150)."

Again touch can be the sign of hearing. Now touch and hearing perceive two different objects but a habitual relation is established between the objects of the two senses in course of time, and the result is that the observer by touching an object can know the object of hearing. For instance: a musician by touching his piano hears the sounds of piano; and this shows that touch is the sign of hearing.

Similar touch can be sign of smell. Touch and smell perceive two different objects but a habitual relation is established between the objects of the two senses in course of time and the result is that the observer by touching an object can know the object of smell. For instance: by touching some smelling body (which is not known) one can know the smell of the body; hence touch is the sign of smell.

Similarly touch can be the sign of taste (it is difficult to discuss taste apart from touch although touch may be discussed apart from taste since when we taste a thing, we naturally touch it, but when we touch a thing, we may not taste it). Any way touch acts as the sign of taste. By touching a thing say, icecream, we say that it is sweet. But sweetness is to be perceived by taste and not by touch. Thus how do we say so by touching it, when truly speaking we can say so by tasting it? We say so because in the past whenever we have tasted it, we have touched it as well, and the result is that the objects of the two senses become habitually associated and now when we touch the icecream, we immediately imagine its sweet taste.

Thus touch acts as the sign of taste.

The above list of the sign theories of perception is not exhaustive but it is only illustrative. On the Berkeleian principle there can be several other sign theories. The vision may act as the sign of the hearing, and Berkeley throws the hint in this connection in *PC* (Nos. 216, 787 and 861). The vision and hearing, it may be recalled, perceive two different objects. But although the objects of the two senses are different, a habitual relation is established between the objects of two senses in course of time. This being so, the visible railway train may bring in the mind of the observer the sound of the moving railway train (although the train may be standing). Again hearing can act as the sign of vision, for the sound of the moving railway train may remind the observer about visible moving train (although the observer may not be looking at the train).

Again vision acts as the sign of smell, and Berkeley throws the hint in this connection in *PC*. (No. 862). The vision and smell perceive two different objects but a habitual relation is formed between the objects of the two senses in course of time. This being so, the visual appearance of the smelling object may remind one of the smell of the object. Again smell can act as the sign of vision, for, the smell of the object in the dark may remind one of the visual appearance of the smelling object.

Further, vision can act as the sign of taste. The vision and taste perceive two different objects but a habitual relation is formed between the objects of the two senses in course of time. This being so, the visible orange may remind the taste of the orange. On the ground that the two different objects of vision and taste are habitually related taste also may act as the sign of vision, for the taste of orange (which one may be eating in dark) may remind the visual appearance of the orange.

Also hearing can act as the sign of taste. The hearing and taste perceive two different objects but a habitual relation is established between the objects of the two senses in course of time. This being so, when we hear some person talking about delicious food served in the marriage party, we imagine the taste of the food which we may have tasted (in the past) in

various marriage parties. On the ground that the two different objects of hearing and taste are habitually related, taste can also act as the sign of hearing, for, when we taste some fruits, we immediately remember the talk of the friends who have tasted them in the past on various occasions, and who told us about the taste of such fruits.

Again hearing can act as the sign of smell. The hearing and smell perceive two different objects but a habitual relation is established between the objects of the two senses in course of time. This being so, when one hears a gardener saying about the smell of some flowers one immediately remembers the smell of those flowers which one may have smelt several times (in the past) in the garden. On the ground that the two different objects of hearing and smell are habitually related, smell can also act as the sign of hearing, for, when we smell some scent, we immediately remember the words of the experts about the scent.

Again smell can act as the sign of taste, and Berkeley throws the hint in this connection in *PC* (Nos. 137, 138 and 241). Now smell and taste perceive two different objects but they are habitually related in the strict physiological sense. For instance; when a professional smells the flavour of the tea, he immediately remembers its taste and hence smell acts as the sign of taste. On the ground that the two different objects of smell and taste are habitually related, taste can also act as the sign of smell, for, when a person drinks coffee or tea or liquor, he not only tastes these things but he also smells these things.

Again hearing can act as the sign of touch; for instance, a sleeping mother on hearing the cry of her child stretches her hands to bring the child nearer to her breast.

Also smell can act as the sign of touch; for instance, by perceiving the smell of a body, we imagine as if we are feeling it.

To conclude, any sense can act as sign of any other sense, provided they are habitually related.

Berkeley was an immaterialist, when he wrote his *NTV* and perhaps even earlier. It is true that in the beginning he considers the tangible objects outside the mind and at a distance but the objects of the other senses inside the mind and not at a

distance but that does not disturb his theory of immaterialism. The tangible objects, being ideas or sense data like the ideas or sense data of the other senses, can not exist outside the mind. The tangible objects, like the objects of any other sense, must be inside the mind. But if they are inside the mind, why does not Berkeley say that they are inside the mind; and why does he speak in a way as if they are outside the mind? The reason why Berkeley speaks in a way as if they are outside the mind is that he was a tactician and he thought that if he would say in the very beginning that the objects of touch, like the objects of any other sense are ideas in the mind, he could hardly get a hearing from the philosophers and hence he preferred to give only part of his general theory in the *NTV*. Thus it was natural for him to speak in the *NTV* in the way as if the objects of touch were outside the mind but the objects of other senses were inside the mind. But in *The Principles* (1710) *Three Dialogues* (1713) *TTV*, he gives his general theory and in these *Works* he clearly tells us that the objects of all the senses including the objects of touch are neither in the mind nor outside the mind but they are before the mind.

Thus the objects seen or touched or heard or smelt or tasted are neither outside the mind nor inside the mind but they are before the mind. But although the objects of all the senses exist as ideas before the mind, the objects of one sense are different from the objects of another sense and as there is habitual relation between the objects of one sense with the objects of another sense, the observer easily knows the objects of one sense through the objects of another sense, for the objects of both the senses are before the mind.

Abbreviations used:

NT.V—A New Theory of Vision.

TTV.—The Theory of Vision Vindicated and Explained.

PC.—Philosophical Commentaries.

Aristotle and Berkeley

This paper is about one and only one point, but perhaps about the most crucial point of epistemology e.g. the question of error and its⁷ solution.

The paper sets out that Aristotle raises the question of error and more than two thousand years after him Berkeley gives the solution of Aristotle's question of error. Aristotle thinks that when one is deceived or is in error, one simply cannot get out of it and know truth; but Berkeley thinks that when one is deceived or is in error, one can get out of it and know truth. This is a good news for the Greeks and it is equally a good news for the moderns.

But how does Aristotle raise the question of error? Before answering this question, it must be pointed out that Aristotle thinks that mind perceives the objects and hence it is necessary to explain the types of objects, which the mind perceives

In *De Anima* Aristotle accepts that there are three types of objects e.g. the proper objects, the common objects and the incidental objects. Aristotle carries this distinction of objects in his *De sensu* as well.

The proper objects, according to Aristotle, are the objects attached to a particular sense organ, and can be perceived only by that sense organ and not by any other sense organ. For instance : the colour is the proper object of sight; the sound is the proper object of the sense of hearing; the odours are the proper objects of the sense of smell; the flavor is the proper object of the sense of taste; while touch has the several proper objects, e.g. hot, cold, dry, moist, hard, soft, etc. (*De Anima* 418 a; 423b).

* Publisher in the Patna University Journals patna July 1968.

The common objects, according to Aristotle, are those which are perceptible to all the senses, particularly to sight and touch. He thinks that movement and rest, number and unity, shape, size, position and time are common objects; because they are perceptible to sight and touch. There are movements, for example, perceptible to touch as well as to sight (*De Anima* 418a). These common objects are not sense-data, because there is no special sense organ for them. All of them are sensed indirectly as a result of the functioning of the particular senses (*De Anima* 425 a). Elsewhere Aristotle admits as if the common objects are directly seen (*De Anima* 418a), but he immediately admits that only the proper objects are sensed strictly speaking.

The incidental object is that which is perceived incidentally as a concomitant of a special sensible, e.g. if one sees a white object which is the son of Diaretes, one incidentally perceives the son of a Diaretes (*De Anima* 418 a).

Aristotle says that the mind possibly receives the proper objects or sense-data of each sense organ and it does not do any interpreting over them, hence mind commits no error or deception (nor truth either) in respects of sense-data or proper objects. For in receiving these sense-data the mind is purely passive being affected "just as a piece of wax takes on the impress of a signet ring without the iron or gold" (*De Anima* 418 a; 424 a). The mind is also undeceived or rather neither deceived nor undeceived for the sense-data are "in the mind just as characters may be said to be on a writing tablet on which as yet nothing actually stands written" (*De Anima* 430 a).

The mind, according to Aristotle, is active in perceiving the common objects of sight and touch, such as, size, position, shape, movement, number, etc in the sense that mind judges that the shape, size, position, movement, number etc perceived through sight and touch are the same. For instance: the mind judges that the shape of a geometrical figure perceived through vision is the same as the shape of the geometrical figure perceived through touch., or the size of the table perceived through vision is the same as the size of that table perceived through touch. And in these perceptual statements lie the error. Perhaps to an ordinary observer the visible shape of a geometrical figure

and the tangible shape of a geometrical figure may be the same or the visible size of the table and the tangible size of the table may be the same, but to a philosopher or a physiologist or a psychologist or a physicist the visible shape of a geometrical figure is different from the tangible shape of a geometrical figure or the visible size of a table is different from the tangible size of a table. However even to an ordinary observer some stock examples of error, e.g. error of seeing/touching the straight oar as bent, double vision error clearly reveal that the visible shape is different from the tangible shape or the visible numbers are different from the tangible numbers and error lies in assuming that the visible shape and the tangible shape are the same or the visible numbers and the tangible numbers are the same. When a straight oar (which is partially immersed in water) is seen bent to an observer but if he imagines that the oar is bent to touch also, there is question of error mainly because the same sensible quality "Bentness" is perceived through both sight and touch. The phenomenon of double vision shows that error lies in thinking visible numbers and tangible numbers as one and identical. For instance: if an observer sees a single object as double (in terms of Thomas Reid's experiment mentioned in his *Inquiry into the Human Mind*, 1764, Chap. VI. sec. ii), and there upon if he imagines that there are two objects (even if handled), he commits an error, for he assumes the perception of the same number through both vision and touch. As Aristotle accepts that sight and touch perceive the common objects, it is natural to suppose that he raises the question of error. However he cannot solve the question of error for the solution of error or in other words the knowledge of truth requires that the objects of sight and touch must be thought different and distinct. When he thinks that the size, shape, situations number, movement etc., perceived through and touch vision are one and the same, and it is this thinking that leads an observer to an error, the only conclusion to which we are forced to, is that an observer, in order to know truth, must distinguish between the size, shape, situation, number, movement, etc., perceived through vision and the size, shape, situation, number, movement, etc., perceived through touch; but an observer cannot distinguish between the size, shape, situation, number move-

ment etc., perceived through vision and the size, shape, situation, movement, etc perceived through touch, and surely not in terms of Aristotle's theory of common objects and hence the observer simply cannot solve the question of error and know truth.

Aristotle evolves the theory of incidental object, perhaps, with a view to explain deception or error. When one, for instance, sees the white object and refers it (incidentally perhaps) to the son of Diaries, the sight is infallible in its awareness that a certain visual datum is white but the referred object may not be the son of Diaries. Here error lies in synthesing between a definite object of sense and an indefinite object which is referred to by the definite object of sense. Aristotle, however, says nothing to correct this error, because his main purpose was to specify the incidental object which is perceived and not to suggest the steps to correct the error, which may arise in perceiving the incidental object.

As the proper objects are merely sensed by the sense organs, they are known as sense-data; but the common objects and the incidental objects, being perceived and interpreted by the mind they are known as mind facta. Thus if the sense-data record no lies (and no truth either), in perceiving we may err. If the sense-data are merely characters or Aristotle's writing tablet, then we can infer that the things perceived, the mind facta, are those characters synthesised or composed into sentences; in the mind facta or the sentences there can be error.

As Aristotle raises the question of error and he does not give any suggestion for its solution i.e., for knowing truth, I introduce Berkeley, because, he not only raises the question of error but also provides preliminary steps for its solution i.e., for knowing truth.

Berkeley accepts the proper objects of Aristotle without any substantial modifications; but in place of Aristotle's common objects he substitutes the 'heterogeneous objects of sight and touch'; further in place of Aristotle's incidental objects he substitutes the 'representative objects',

Like Aristotle, Berkeley thinks that proper object or objects are those which are attached to a particular sense organ and

therefore they can be perceived only by that sense organ. In the *Principles* (S. I.) Berkeley gives an inventory of the proper objects of each sense organ. For example: the lights and colours with their several degrees of variations are the objects of sight; the heat and cold, hard and soft motion and resistance are the objects of touch; the odours are the objects of smelling; the plates are the objects of taste; and the sounds and their variations are the objects of hearing.

Berkeley does not accept Aristotle's theory of common objects perceptible to both sight and touch. Instead, Berkeley thinks that the objects perceptible to sight are different from the objects perceptible to touch. This theory can be found in Berkeley's note-books.¹ Later on this theory was given a prominent place by Berkeley in *A New Theory of Vision* (1709) and finally this theory was confirmed by him (on experimental grounds) in *Vindication* (1733). Berkeley's heterogeneous objects of sight and touch are accepted by Professor A.D. Ritchie in his work entitled *George Berkeley: A Reappraisal* (1967, ch. 2, s, 7.).

In this context Aristotle's common objects e.g., shape, size, and situation of the objects etc., are to be judged. Aristotle said that the shape, size, and situation of the objects are perceptible both to sight and touch. Surely they are perceptible to sight and touch but in terms of Berkeley's novel arguments, the shape, size, and situation of objects which are perceived through sight are not the same as the shape, size, and situation of objects perceived through touch. Instead the shape, size, and situation of objects perceived through sight are different from the shape, size, and situation of the objects perceived through touch. When the shape, size, and situation of objects are perceived through vision, it is obvious that they are composed of visible ideas and hence these are different from the shape, size, and situation of objects perceived through touch, since when these are perceived through touch, they are composed of tangible

1. Professor. A. C. Fraser, published the note-books under the title *Common Place Book of Occasioned Metaphysical Thoughts* (1871). But Professors A. A. Luce and T. E. Jessop re-named the work of A. C. Fraser as *Philosophical Commentaries* (1944).

ideas. The two ideas of the two different senses are different and distinct (NTV SS 121 to 159).

The representative objects: Berkeley succeeded in throwing out everything which was Lockian, but he did not help falling on some terminologies, which are clearly Lockian. The terminology of representative object is clearly Locke's terminology; Berkeley incidentally uses it in his *New Theory of Vision* (SS 140 to 143) but he is careful in giving his own version about it. Locke said that the mind perceives the copies or ideas which represent the physical or tangible objects (the latter being unperceivable). Berkeley, however, does not accept the unperceived or unperceivable tangible or physical objects. If the physical or tangible objects are to be accepted, they must be perceivable through touch. And when they are perceived through touch, they are ideas (tangible). Thus he accepts the presentative objects in the sense that the visible objects are the representative of the tangible objects. The reason why the observer thinks that the visible objects represent the tangible objects is that he has learnt the relationship between them in his experience and therefore in future too, by perceiving the visible objects he imagines the tangible objects.

Let me now point out how Berkeley raises the question of error and how he answer the question of error.

Berkeley's proper objects, like Aristotle's proper objects, do not raise any question of error, because mind, at this stage, merely observes certain sense data and it does not relate the sense data of one sense organ with the sense data of any other sense organ, and error, on the hand, lies in relating the sense data of one sense organ with the sense data of the other sense organ. But Berkeley's heterogeneous objects of sight and touch do raise the question of error. It is true that Berkeley maintains that the objects of sight and touch are different and distinct. For instance, the shape, size, and situation of objects perceived through sight and touch are different and distinct. The observer, however, some time after birth, constantly learns to corroborate and associate the two heterogeneous objects. When he has fully learnt the corroboration, association of the two objects, he shall, in all probability, by perceiving the shape, size, and situation of objects through vision.

imagine the corresponding shape, size, and situations of objects, which may be perceived through touch, and there will be no error or deception. For instance; if an observer perceives through vision a straight oar partially immersed in water as bent but there upon if he imagines that the oar is straight to touch there is no error or deception, since the visible bent oar (when the oar is partially immersed in water) and tangible straight oar (even if it is partially immersed in water) are co-operative and corroborative. But due to lapse of memory, sometimes the observer forgets this association, corroboration and co-operation and therefore if an observer by perceiving through vision a straight oar as bent, imagines that the oar is also bent to touch, he falls into error or is deceived, because he judges that the straight oar (when partially immersed in water), bent to the eyes, is also bent to touch. Such deception or error however, is quite temporary and he can soon discover his error and know truth only with a little effort on his part i. e. by remembering that the object perceived through vision is different from the object perceived through touch; thus he can find out an answer to his own error before any other observer points out to him his error.

Besides, Berkeley's representative objects raise the question of error and he also suggests steps to get over the error and thus to know truth. Berkeley thinks that the visible objects represent the tangible objects, because of which the observer, by perceiving the visible objects, imagines the related tangible objects. Error, however, arises if the observer is not cautious or careful; and hence by perceiving a visible object imagines that tangible object, which is not represented by that visible object or by perceiving a visible object, he imagines a tangible object, which although may be represented by the visible object but actually that object is not there. For instance when an observer sees a shell but judges it a silver and states. "This (shell) is a silver", it is an illustration of error, for the visible shell represents the tangible shell, but as the observer sees a shell and predicts tangible silver in place of tangible shell, there is error. However he can get over his error by careful analysis of the perceptual situation, and on a clearer view know truth. He can also know truth by corroborating with the experiences

of the other observers. A drunkard, by perceiving visible pink rats, thinks that there are tangible pink rats, where actually there are no pink rats and hence he is under delusion or perhaps he is hallucinated. He can get over his error and know truth by corroborating his experiences with the experiences of others, who say that there are no pink rats. This latter example of error can be made clearer by postulating two observers "A" and "B", where "A" is in drunken state and "B" is a normal or sober observer. "A" says pointing "There are pink rats". "B" who hears him and sees him pointing, fails to corroborate him by seeing, touching, hearing, or smelling anything, ratty "or" "pink" in the place pointed to by "A", which leads him (B) to conclude that "A" is under some delusion or is otherwise hallucinated. "B" however cannot show to "A" the error of "A"s pink rats unless "A" himself is willing to discover for himself whether or not he (A) finds something tangible, audible or smellable and not just visible in an odd kind of way.

"A", even if intoxicated, can collaborate to some extent and so help to demonstrate the falsity of his (A) experience; but A's collaboration will be inferior to that of a sober and otherwise normal B, because he (A) finds himself under unusual personal situation, created by the effect of drugs, fear, fatigue and other pathological states. Therefore all the collaborating, has to come from sober "B" and very little from drunken "A". Thus it is difficult, if not impossible, for "A" to arrive at truth with the help of experiences of sober and normal "B". However, it is not easy for "A" to know truth just as it is easy for normal and sober B to know truth for when he (B) mistakes a tree for a man in obscure light, he (B) easily discovers his (B) mistakes for himself and has no difficulty in arriving at agreement with any other normal and sober observer say "C" because they both agree that at first it did look rather like a man, but now on a nearer and clearer view it looks extremely like a tree.

Locke and Berkeley*

John Locke and George Berkeley each gives a separate answer to philosopher-optician Molyneux's question. Locke's answer, however, is wrong or perhaps indefinite, because his answer is in terms of a theory of perception which is not tested experimentally; but Berkeley's answer is correct, definite, and even scientific because his answer is in terms of a theory of perception, which is tested experimentally.

Let me now introduce Molyneux's question. His question crops because of a test case, which is as follows:

Molyneux's observer was a blind observer from birth; this observer had learnt to distinguish and identify a cube and a sphere by touching and handling. This he did [whenever a cube and a sphere (made for that purpose) were placed before him. Once when he was playing with them, he was suddenly gifted with vision. He was asked to distinguish and identify the same objects through vision without touching and handling them but he failed to do that. Perhaps the newly restored sight was terrifying or painful to him and his vision was blurred or confused. But this is all guess. What is not a guess is that when he learnt (in course of time) to correlate the newly acquired visual experiences of a cube and a sphere with his previous haptic experiences of a cube and a sphere, he was able to distinguish and identify these objects.

Molyneux's question is a general question and can be put as follows:—

'Can a man born blind and made to see, distinguish and identify a cube from a sphere by sight before he touches them' (Locke's *Essay*, Bk II, Ch 9, S. 8.) ?

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Locke's theory of perception is that vision and touch both perceive identical sense experience. That is what the touch feels the eyes see. Hence Locke can answer the Molyneux's question saying that his blind observer, who has been gifted with sight, would now see through vision the same identical impression directly and independently what his hand had previously felt. But how could it happen that way unless visual and tactual impressions both came from one and the same invisible and intangible independent object to do the impressing? But a cube and a sphere, being invisible and intangible, cannot do the identical impressing on the vision and touch.

This difficulty would, therefore, force Locke to say that Molyneux's blind observer, who has now received sight cannot distinguish and identify between a cube and a sphere through newly acquired vision alone. Locke, therefore, cannot answer the Molyneux's question in terms of his theory—the identical experience through vision and touch both.

Molyneux's question can be answered in terms of Berkeley's theory (*A New Theory of Vision*, 1709). Berkeley's theory is: the relations between them have to be learnt by experience and not *apriori*.

Berkeley knew that such a theory is risky but before he spoke about such a theory he made sure that his theory has got certain experimental supports and the risk involved in his theory is only imaginary. Chesselden's operation for congenital cataracts performed on a boy of 13 years in 1728 is one such experimental evidence to Berkeley's theory (*Vindication* 1733 SS 71-2).

Chesselden had made sure before the operation that his patient could identify between a cube and a sphere by touching and handling. After the operation, Chesselden confronted the lad with the same two objects and before letting him handle them, asked him if he could identify them by sight alone which was which. The patient could not do; but later on by handling them and looking at them, he learnt to distinguish and identify by sight as an ordinary man has learnt to do in childhood. If the

lad had failed to learn everybody would have said that his sight was abnormal and Chesselden would have had to try again with another patient.

Chesselden was lucky in getting correct answer which Berkeley's theory required. Others, who performed operations on cataracts, were not so lucky in getting the right type of reply which Chesselden got. This is not because Berkeley's theory is wrong or Chesselden was a bad surgeon. This is because, in the first place, the cataracts are very difficult phenomena to be asserted early, and in the second place, it is not easy to distinguish how much or how little use is made of vision in the first two weeks of life, and lastly, the success or failure of correlation between sight and touch depends on intelligence and interest as well as on the physical normality of visual and motor apparatus of a child.

Chesselden's operation on a young lad for cataract is a test case, which amply confirms the theory (Berkeleyian and not Lockian) that a previously blind subject can learn to identify new visible bodies with old familiar tangible ones, but has to learn.

As Berkeley's doctrine has stood the experimental test, his doctrine appears to be correct and Berkeley can answer the Molyneux's question that a blind observer, able to distinguish and identify a cube and a sphere by touching and handling, fails to do so when he first receives sight, because he is forbidden to handle them, but subsequently he is able to distinguish and identify between these objects because he learnt to correlate his new visual experiences of a cube and a sphere with his past touch experiences of a cube and a sphere.

Berkeley's theory has the support of various evidences from other sources from his century to ours. Further, subsequent observations have not proved anything contrary to Berkeley's theory.

Berkeley is, therefore, a genuine empiricist, a genuine observer, because he knew that in the long run empirical questions are

technical questions. Discerning by sight the distances, magnitudes, shapes and situations of objects is a technique which has to be learnt or else things are discerned badly or not at all. Berkeley learnt to restore sight to those who have been more or less blind from a very early age.

Berkeley assumes that each item of experience is distinguishable from the other item of experience and that each item of experience is apprehended separately under certain circumstances; he further assumes that each item of experience is brought into relation with another item or set of items, as a sign to signify, or vice-versa and that this can be done correctly or incorrectly according as the relation turns out to be constant or inconstant subject to systematic rules. Berkeley assumes that our empirical knowledge of the physical world or world of tangible objects or bodies (including our own) and of all spatial and temporal order begins in this way and in no other way. All the visual relations under standard conditions of observation correspond with or correctly signify the relations among the tangibles, already familiar to the observer. If an observer sees that the visual relations of a sphere or a cube correspond with or correctly signify the tangible relations among a cube or a sphere already known to him, he can correctly distinguish between a cube and a sphere.

The answer to Molyneux's question establishes the following results: the tangible and visible are separate realms of experience; the tangible experience is prior to the visible experience but this priority needs further investigations; and that sight has the normal function of providing signs with which to predict touch, though it can be the other way round.

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Berkeley's Learning Theory of Perception

Berkeley's pioneer enterprise, the one which not even a Greek had thought of, was an attempt to expound a theory that each sense organ perceives a sign and the sign leads to the knowledge of that physical object, which becomes associated with the sign in course of experience. The point which he presses is that the observer learns to associate a particular sign of a particular sense organ with the physical object and after he has fully learnt the association between them, he by perceiving the sign, thinks about the physical object. This is comparable to learning the science of language. One learns to associate a particular word with the physical object and after one's learning to associate a word with the physical object is complete, it is significant to note that when one comes across the word in future, one immediately thinks about the physical object, associated with that word.

Let me explain how Berkeley attempts to show that a particular sign perceived through a particular sense organ suggests the knowledge of the physical object.

In *A New Theory of Vision* (1709) Berkeley points out that vision perceives a visible object, which is a sign and the sign suggests the object. For instance : when an observer looks at a table, he perceives a visible table, which is a sign of the table and this sign suggests the object of that name i.e. table. The reason why the visible table suggests the table is because the sign of the

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visible table and the object become habitually related in course of experience and this habitual relationship between them is learnt by the observer by taking into account his own experiences as well as the experiences of others; and as the observer has learnt the habitual relationship between them, he no sooner perceives the sign it suggests to him the object. Berkeley confirms his theory by taking large number of illustrations.

Berkeley tells (incidentally perhaps in *A New Theory of Vision* (S. 46) that the sense of hearing, perceives sound only, and the sound may suggest, for example, a coach. Thus to say that we perceive the sound of the coach is wrong. The truth is that the sense of hearing perceives sound only which may suggest the coach provided in the first place the habitual relationship between them is established and in the second place the observer has learnt the habitual relationship between them.

Berkeley does not say that like the sense of vision or the sense of hearing, the sense of smell or the sense of taste perceives sign.

But we can say off hand that the sense of smell perceives smell, which may suggest rose or any smell producing object provided a habitual relationship between the sign smell on the one hand and the rose or any other object on the other hand is established, and provided further that the observe has learnt the habitual relationship between them.

Further, we can say that the sense of taste perceives plate which may suggest say, an orange provided in the first place a habitual relationship is established between them, and in the second place the observer has learnt the habitual relationship between them.

Now a question arises; whether, or not touch perceives sign which suggests an object. Berkeley does not tell in so many words that the sense of touch perceives the sign, which suggests the object. But through the illustration of Molyneux's blind observer (*Philosophical Commentaries*, Nelson Ed. Vol. I. 1948, No. 32; *A new Theory of Vision* S. 132), and the illustration of Chesselnden's patient (*The Theory of Vision, Vindicated and Explained*, 1733, S. 71, Nelson Ed. Vol. I, 1948). Berkeley tells us that touch perceives sign, and the sign suggests the object. I

present below these two illustrations for my reader to see how touch perceives sign which suggests the object.

Molyneux's blind observer distinguished (when he was blind) between a cube and a sphere fairly well by touch alone, because through touch he learnt that the shape of a cube is habitually associated with the cube and the shape of a sphere is habitually associated with the sphere. However it so happened that once when both the cube and sphere were placed before him, he all of a sudden gets sight. As a result of this he gets new visual experiences of the cube and sphere. But he fails to distinguish between them by vision alone. Later on when he is habituated to use his sight, he is able to distinguish between a cube and a sphere by vision. This illustration of Molyneux's observer makes it quite clear that the observer, before he received vision, perceived through touch the sphere of the cube or sphere which acted as a touch sign and the sign suggested the object, say a cube or a sphere. This means then that through the sign of a cube or a sphere he was able to distinguish between a cube and a sphere. This is further strengthened by the fact that immediately after the receipt of vision, he was not able to distinguish between a cube and a sphere because no habitual relationships between the visible cube and the cube as well as between the visible sphere and the sphere were established in his mind and hence he did not learn the habitual relationships between them. This is crystal clear from the fact that after he became acquainted with the use of vision he clearly distinguished between a cube and a sphere, because by he acquired being acquainted with the use of vision the knowledge of the habitual relationships between the visible cube and the cube as well as between the visible sphere and sphere. But it must be remembered that the visible sign of a cube or a sphere is different from the tangible sign of a cube or a sphere and the reason why a visible sign of a cube or a sphere suggested respectively the cube or a sphere is because both became habitually related in course of experiences; so also a tangible sign of a cube or a sphere suggested respectively a cube or sphere is because both became habitually related in course of experiences.

Through the illustration of Chesslden's patient Berkeley seems to confirm his theory that touch sense perceives sign which suggests the object. This patient, before his operation of cataract, used his sense of touch to know objects. Later on after his operation he immediately failed to know the objects through vision alone. But after having learnt the use of vision, he had no difficulty in knowing the objects through vision. The Chesslden's patient, before he acquired vision, perceived through touch the signs of the objects, which suggested the objects. This means, then, that through the perceptions of the signs he was able to distinguish between the objects. This is further strengthened by the fact that immediately after the receipt of vision, he failed to distinguish between the objects, because no habitual relationships between the visible signs on the one hand and the objects, on the other hand, were established in his mind and hence he did not learn the habitual relationships between them. This is crystal clear from the fact that after he became acquainted with the use of vision, he clearly distinguished between different objects, because by being acquainted with the use of vision, he acquired the knowledge of the habitual relationships between the visible signs and the objects. But it must be remembered that the visible signs and the tangible signs are different and distinct and the reason why the visible signs suggested the objects is because both became habitually related in course of experiences; so also the tangible signs suggested the objects because both became habitually related in course of experiences.

From the above it is clear that observer perceives through each sense organ the sign peculiar to that sense alone and he does not perceive the physical object. But the physical object becomes associated with the sign in course of his experiences. Hence later on no sooner the observer perceives the sign he imagines as if he perceives the physical object. But this is a vulgar error. The truth is that he perceives the sign and he knows the physical object through suggestion as said above.

Bertrand Russell and The Problem of Perception

In this paper an attempt is made to solve the problem of perception. This means that the problem of perception it must first be stated in simple terms. Stated in simple terms it means how the 'object that is perceived', hence mental, leads to the knowledge of something which is extramental or physical object. Only satisfactory explanation of this "how" is the solution of the problem of perception. Let me clarify this through an illustration. For instance, we perceive an object say 'this' and it refers to some physical object, say 'table'. As 'this' which is perceived is a mental object and 'table' to which 'this' refers to is a physical object, the question that arises is, how by perceiving 'this' which is a mental object, we know a physical table. This is the problem of perception. A satisfactory explanation of this will be the solution of the problem of perception.

Now I want to discuss the following three questions :

1. Is Bertrand Russell aware of the problem of perception ?
2. If the answer of Q. No. 1 is in the affirmative, the next question that arises is. does he solve the problem of perception in terms of his own theory of perception ?
3. Or does he need any other theory of perception to solve the problem of perception ?

Before taking up these questions, I think it proper that we must first analyse Russell's theory of perception.

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Russell accepts the causal theory of perception. His theory broadly means that perception of any object is caused by the physical object, in the sense that when we look at an external object, light waves or photons start from the object and they come to our eyes. When they come to our eyes, changes occur in the light waves, these light waves then go in our nerves and there further changes occur in the light waves, these light waves then go in our brain, where further changes occur in them and thereafter we see the object (*Human Knowledge* 1948, p. 221).

Now if we substitute 'physical table' for external object and 'sensible table' for the object seen, the perceptual theory of Russell may be reconstituted as follows :

When we look at a table, light waves or photons starts from the table and they reach the eyes and then changes occur in them later the light waves go in the nerves, where further changes occur in them and the light waves then go in the brain, where still further changes occur in the light waves and as a result of these changes in the light waves we see the table.

Let me now take up for discussion one of the three questions mentioned earlier, e.g. Is Russell aware of the problem of perception ?

In this connection I have to say that Russell makes it quite clear that in the area of brain some mental object is perceived. It is true that this mental object is caused by the physical object in the sense that the light waves or photons start from the object and they go in the brain via the eyes, nerves, etc. and in the area of the brain these light waves suddenly change into the mental object but the point is that if we perceive the mental object, the problem is, how do we know the physical object ? For instance, when we look at the physical table light waves or photons start from the physical table and these light waves or photons go in the brain via the eyes, nerves, etc. and in the area of brain these light waves change into mental table, and it is the mental table which is perceived at all. This being so, how is physical table known ? This is the problem of perception and it appears that Russell knows the problem of perception.

As Russell is aware of the problem of perception, the next question that arises is does he solve the problem of perception in terms of his own theory of perception? Now as said above the causal theory, which Russell accepts, makes it quite clear that we perceive the sensible object in the brain, which is caused by the light waves or photons coming from the physical object in the brain, via the eyes, nerves, etc. For instance when we see the sensible table in our brain, this table is caused by the physical table in the sense that light waves or photons come from the physical table and they go in the brain via the eyes, nerves, etc. and the appearance of the table is the result of these light waves. Now it is evident that the light waves certainly take some time in going from the physical object to the brain of the observer. It is also evident that as the physical table is very near the observer, the time taken by the light waves in going from the table to the brain of the observer may not be seriously considered. But in the case of perception of the sun Russell himself notes that the light waves or photons take 8 minutes time to reach from the sun to the brain of the observer (*An Inquiry into Meaning and Truth*,) 1940, pp. 177-8), and hence the time taken by the light waves or photons in going from the physical object to the observer's brain is a very important question and this cannot be ignored. Thus it is clear that even when an object, say, at table is very near the observer, the light waves or photons must take at least some time to reach from the physical table to the observer's brain. Under the circumstances, if it is claimed that the sensible table is the result of light waves coming out of the physical table, it is evident that the sensible table cannot be the basis for knowing the physical table, for the light waves started their journey from the physical table at an earlier moment and the table is seen at a later moment and hence the sensible table of the later moment becomes the ground for knowing the physical table of the earlier moment. But this is absurd. During the time consumed by the light waves in travelling from the physical table to the brain of the observer, the physical table may have even changed. So the sensible table may be the ground for knowing the physical table existing exactly at the time when the light waves start their journey from the physical

table, but that table is not in existence at the moment when the sensible table is apprehended because of the changing nature of the material objects, and the physical table is, indeed, a material object, and being so, it must change at every moment. Thus the sensible table cannot be the basis for knowing the physical table. Indeed the sensible object as such cannot be the basis for knowing physical object. Russell, therefore, does not solve the problem of perception in terms of his own theory of perception.

There is also another attempt by Russell to solve the problem of perception. He makes a distinction between a sensible object and a physical object, the former object being in the area of brain is mental, the latter object, being outside the percipient's body, is extra mental. The sensible object is directly perceived because the sense data, which construct a sensible object, are directly apprehended, and the physical object is known through description and according to him an object is known through description when it causes such and such sense-data which make up sensible object, as well as when we generally believe that these sense-data, concerning the physical object, are true. For instance, the table that appears, as Russell in *The Problems of Philosophy* (1912, pp. 46-48) says, is the collection of sense-data, e.g. colour, shape, hardness, etc. Further as we have direct acquaintance or knowledge of the sense-data of [the table, the table that appears is also known directly' But the physical table, as Russell, admits, is never known directly. It is known through description. A table is known through description when we are directly aware about the sense-data, which make up a table, as well as when we are aware of the knowledge of the general truth about the sense-data of the table.

Hence Russell drops the idea of the light waves or photons, which may have come from the physical table to the brain and caused the perception of the sensible object, perhaps because these are unobserved and unobservable phenomena in the sense that no body has seen them nor any body can see them, for when we look at a physical table, we perceive a table, which may be called a sensible table, we never perceive the light waves or photons coming from the physical table and ultimately causing the perception of the sensible table.

Thus it means that the sense-data, which make up a sensible table, are caused by the physical table. This means that the table is seen because of physical table. But if we consider the point that the physical table is known through description of the sense-data construing, the sensible table, it is clear that the physical table is described and understood in terms of sense-data, which make up a sensible table. In short the physical table makes possible the perception of sensible table and the sensible table makes possible the existence of the physical table, and hence there is the fallacy of the circular reasoning. Hence Russell does not solve the problem of perception.

This leads me to the third question, if Russell does not solve the problem of perception in terms of his own theory of perception, does Russell need any other theory of perception to solve the problem of perception? Before I answer this question, it would be useful to point out that it is a fact that when we look at a physical object, we see some sensible object, and it is only a question of process how we see it and once the direct perception of the sensible object is accepted, it leads us on to some further question e.g. whether or not the sensible object leads us on to the knowledge of the physical object. If the answer is in the negative no further discussion is needed but if the answer is in the affirmative (as it must be for the solution of the problem of perception), we have to find out a theory by which the sensible object leads us to the knowledge of the physical object.

I suggest that the common sense view of perception can very well serve this purpose. The common sense view of perception is that each observer must perceive in the light of his own experiences, past, present and future corroborating as far as possible with the experiences of others. The perception is therefore a learning wherein the observer learns to relate the sensible object and the physical object with the help of his own experiences as well as with those of others and no sooner he perceives the sensible object, he knows about the physical object. Russell is, therefore, advised to accept this theory of perception. By accepting this theory he will be able to relate the sensible object with the physical object through his own

experiences. And once he learns the relationship between the sensible object and the physical object, it would be easy to know the physical object by perceiving the sensible object.

Against this view there may be an objection that, how are the perceptions caused? To be precise if the perceptions are not caused by light waves or photons from the physical objects as suggested by Russell, how are they caused? In this connection I have to say that when we see an appearance of the object, we do not see the light waves or photons coming from the physical object, yet it is undeniable that when we look towards a physical object, we straight away see sensations and these sensations become habitually related with the physical object, so much so that when in future we have sensations, we immediately remember the physical object to which these sensations are related. If any observer is not satisfied with what I say, I suggest him to experiment this in his own perceptions and I am sure that he will accept my view. Thus when an observer learns the relationship between a table that he sees and a physical table, he, at once by perceiving a sensible table, knows about the physical table because the former is related to the latter through habits. The perception is, therefore, a learning. The theory that perception is a learning is supported by Molyneux's question. Molyneux, the Irish philosopher, sent his question to Locke, and he inserted Molyneux's question in his *Eassy Concerning Human Understanding* (BK II, Ch 9, Sec. 8) to prove that perception is a learning. Later on Berkelay mentions Molyneux's question in his *New Theory of Vision* (1709, S. 132), and uses it to support Locke's contention that perception is a learning (*The New Theory of Vision*, SS. 133-35).

Let me, therefore, state briefly Molyneux's question. A born blind observer was able to distinguish between a cube and a sphere through his touch. Once when he was playing with a cube and a sphere, he suddenly received sight. After he received sight, he was unable to distinguish between a cube and a sphere for uptil now he was able to distinguish between them through his touch experiences of these objects. But now when he has received new visual experiences he is unable to distinguish between them through his vision. But in course of his

experiences when he has learnt to relate between his new visual experiences with his previous tactile experiences, he is able to distinguish between a cube and a sphere. The Molyneux's question throws a hint to consider the question of perception in the light of the experiences of the observer. The observer by visually scanning the object and by playing with the object perceives the sensations, and the sensations become habitually related with the object so that in future when the observer perceives the sensations, he immediately knows the object because he has learnt the habitual relationship between them through his experiences. Thus I close this paper in terms of Professor A.D. Ritchie, who thinks that if perception is regarded as a learning, vision gives genuine experience and not merely lights and colours, because in this theory of perception, vision stands as a set of external signs to the physical objects (*History and Methods of the Sciences*, 1958, p. 5).

George Berkeley's Metaphysical Thoughts

This paper is in defence of Berkeley's metaphysics—immaterialism and semi-materialism : the former is his well known doctrine ; the latter, however, is slowly becoming known to the intellectual world.

Berkeley successfully works out his immaterialism in *The Principles of Human Knowledge* Part I (1710). But he tactfully conceals his semi-immaterialism in *An Essay to-wards a New Theory of Vision* (1709).

The Principles Part I and Essay are based respectively on *Note-Book (A)* and *Note-Book (B)*. These two *Note-Books*, bound in wrong order¹ as *Note-Book (B)* and *Note-Book (A)*, are still preserved in the British Museum, as Berkeley's manuscript².

Berkeley wrote his *Principles* Part I and *Essay* almost simultaneously.

In November-December 1703, Berkeley, at an early age of 23 years only, began writing his famous book the *Principles* to establish his immaterialism, namely, the corporeal objects exist as ideas in the mind. But hardly he reached section 43 of his

* The gist of the paper was published in the *Proceedings of the Indian Philosophical Congress, (World Congress.)*, Delhi December, 1975.

1. T. Lorenz first discovered this mistake (vide T. Lorenz. *Archiv für—geschichte der Philosophie*, 1905, XVIII, pp 554ff.).

2. *Note Book (A)* and *Note Book (B)* consist of nine hundred short philosophical notes. Berkeley wrote them when he was only 22 or 23 years old. Berkeley did not publish these notes. After his death A.C. Fraser published them under the title *Commonplace Book of Occasional Metaphysical Thoughts* in 1871, and A.A. Luce and T.E. Jessop published them under the title *Philosophical Commentaries* in 1944.

Principles he felt that external space and bodies actually existing in it presented difficulty in the way of establishment of immaterialism. He, therefore, temporarily abandoned writing his *Principles* and started writing his *Essay*. The following passage proves this :

"... how it is that we perceive distance and things placed at distance by sight. For that we should in truth see external space, and bodies actually existing in it, some nearer, other farther off, seems to carry with it some opposition to what hath been said, of their existing no where without the mind. The consideration of this difficulty it was, that gave birth to my *Essay to-wards a New Theory of Vision*, which was published not long since".³

The above passage makes it quite clear that Berkeley had to write his *Essay* to remove 'matter' which proved difficulty towards the establishment of immaterialism. He completed his *Essay* and published it from Dublin in 1709. But Berkeley did not remove 'matter' from his *Essay*; instead, he accepted semi-materialism in this work. He published his *Essay* on ten⁴ different occasions and in three⁵ different styles. But the *Essay's* central thesis remained semi-materialism. I will discuss semi-materialism later. First I would like to discuss Berkeley's immaterialism in his *Principles* Part I.

After the first publication of the *Essay* Berkeley published his *Principles* from Dublin in 1710 and he describes it as Part I. He made a promise to write Part II as well. (Preface to the *Three Dialogue* 1725 Editions). This promise was never fulfilled. The reason as Berkeley admits is that its" . . . manuscript was lost about fourteen years ago, during my travels in Italy, and I never had the leisure since to do so disagreeable a thing

3. George Berkeley—*The Principles* Part I, 1710, Nelson Edition, Vol. II, 1949, Edinburgh S. 43, p. 58.

4. *The Essay* was published from Dublin in 1709 and 1710. It was published thrice in 1732 as Appendix to *Alciphron*. It was again published under the title *The Theory of Vision...Vindicated and Explained* from London in 1733. In 1752 *Alciphron* was published without *Essay* as an Appendix. But the 4th Dialogue of each edition of *Alciphron* is the *Essay* in dialogue.

5. *The Essay* was published in 3 styles—inductive, deductive and dialogue. The style of the *Essay* is inductive; the style of *Vindication* is deductive; and the style of *Alciphron* (4th Dialogue is *Essay*) is dialogue.

as writing twice on the same subject". (Nelson Edition of Berkeley's *Works*, Vol. II, p. 282).

In any case Berkeley was to discuss 'morality' in his promised Part II of the *Principles*. Hence even without Part II, his *Principles* Part I is a complete work on 'immaterialism'.

Berkeley establishes his immaterialism through his famous axiom '*esse is percipi*'. This axiom generally means that the existence of corporeal objects consists in its being perceived by any observer. It would be contradiction in terms to speak of anything corporeal, if it is imperceptible or entirely unperceived. Berkeley says :

'The table I write on, I say, exists, that is, I see and feel it; and if I were out of my study I should say it existed, meaning thereby that if I was in my study I might perceive it, or that some other spirit actually does perceive it'.⁶

But even if it is accepted that a corporeal object exists, when it is perceived by any observer, how is Berkeley to prove, that the corporeal object exists as an idea or a collection of ideas in the mind? That he can do, because he takes perception as the 'immediate', and the immediate perception of an object is always the perception of an idea or a collection of ideas. Accordingly when a corporeal object is immediately perceived, it is perceived as an idea or a collection of ideas in the mind. In this sense a corporeal object is an idea or a collection of ideas in the mind. Thus Berkeley can establish his immaterialism on the basis of his axiom '*esse is percipi*' only if he takes this axiom as meaning that the existence of a thing or an object depends on its immediate perception by an observer. As he takes this meaning of the *esse is percipi*, in his *Principles* Part I, he is successful in establishing his immaterialism there.

But soon after the publication of the *Principles* Part I, his friend Percival wrote to him about the cold reception of the book. I quote below the following lines from Percival's letter :

"A physician of my acquaintance undertook to describe your person, and argued you must needs be mad, and that

6. George Berkeley—*The Principles of Human Knowledge*, Part I, 1710, Nelson Edition, Edinburgh Vol, II, 1949, S.3.p. 42.

you ought to take remedies. A bishop pitied you that a desire and vanity of starting something new should put you on such an undertaking.....”⁷

Similar contemptuous remarks were made against Berkeley by others also. But Berkeley was convinced that the immediate perception of an object would automatically lead to immaterialism. He, therefore, confirms his immaterialism in the *Three Dialogues*, which was published from London in 1713.

The Three Dialogues, as the title indicates contains ‘three dialogues’, each one being between Hylas, the materialist, and Philonous, the immaterialist. Ultimately Hylas also accepts immaterialism.

The Three Dialogues proved to be a very popular work of Berkeley for two reasons: first it is the best dialogue ever written in Europe after Plato; and secondly this book makes the confused topic of immaterialism easier through conversation.

Let us now turn to Berkeley's *Essay*, where he accepts semimaterialism. In the *Essay* although he accepts that an object, that is immediately perceived, is an idea or a collection of ideas in the mind, but as he thinks that the immediately perceived object in the mind suggests an object outside the mind i.e at a distance, his doctrine is here semi-materialism. Thus the axiom *esse is percipi* means that the existence of an object depends on its perception. But perception is the synthesis of both the immediate and mediate perceptions of an object. A sense immediately perceives an object as an idea or a collection of ideas in the mind and through its immediate object, a sense mediately perceives the object, its distance, magnitude and situation, outside the mind. I quote a passage of Berkeley in this connection.

“.....there are two sorts of objects apprehended by the eye, the one primarily and immediately, the other secondarily and by the intervention of the former. Those of the first sort neither are, nor appear to be, without the mind, or at any distance off;.....Whenever we say an object is at a distance,.....we must always mean it of the latter sort,

7. Percival's letter dated the 26th August 1710 to Berkeley—Luce and Jessop Edition of *Berkeley's Works*, Vol. IX, 1957, Edinburgh, p. 10.

which properly belong to the touch and are not so truly perceived as suggested by the eye."⁸

Similarly Berkeley says that by the variation of noise I perceive the distances of the coach⁹. He, thus, accepts that the noise is in the mind but the various distances of the coach are outside the mind.

In the following passage Berkeley clearly says that the 'tangible objects' (i.e the corporeal objects) exist outside the mind :

"The magnitude of the object which exists without the mind, and is at a distance, continues always invariably the same : But the visible object still changing as you approach to, or recede from, the tangible object, it hath no fixed and determinate greatness. Whenever, therefore, we speak of the magnitude of anything, for instance a tree or a house, we must mean the tangible magnitude, otherwise there can be nothing steady and free from ambiguity spoken of it....."¹⁰

In the *Alciphron*: Dialogue (IV) too Berkeley confirms the existence of tangible objects outside the mind :

".....the proper objects of sight are light and colors..... adapted to suggest and exhibit to us the distances, figures, situations, dimensions, and various qualities of tangible objects.....just as words suggest the things signified by them."¹¹

But although Berkeley's *Essay* assumes semi—materialism, this book is not in clash with the *Principles* Part I, which deals with immaterialism. The point is that in the *Principles* Part I Berkeley thinks that *esse* is *percipi* means the existence of a thing consists in its being immediately perceived by an observer, and he therefore logically arrives at the conclusion of immaterialism. In his *Essay* Berkeley accepts that the existence of an object depends on its perception, but the perception is

George Berkeley—*A New Theory of Vision*, 1709, Nelson, Edition, Vol. I, 1948, Edinburgh, S. 50 pp. 189—90

9. *Ibid* S. 46, pp. 188—89

10. *Ibid* S. 55, p. 191

11. Colin Murray Turbayne—*George Berkeley's Works*, on Vision U.S.A. 1963 pp. 103—9

the synthesis of both the immediate and mediate perceptions of an object ; the object of immediate perception is in the mind but the object of mediate perception is outside the mind. Berkeley, therefore, accepts semi-materialism in the *Essay*.

In the earlier days his *Principles* Part I was better known and so his immaterialism was also a well known doctrine. But now his *Essay* is getting more popular in the intellectual world and so his semi-materialism is also slowly becoming known to the intellectual world.

George Berkeley's New Argument for the Existence of God

George Berkeley in his various *Works* in general and *Alciphron* (1732) in particular establishes the existence of God.

Berkeley's *Alciphron* is the best dialogue in English Literature of philosophy. Outside Plato, there is no dialogue in this generation to compare *Alciphron* with, except Berkeley's own *Three Dialogues* (1713).

Further, of the three outstanding *Works* on Christian apologetics, Berkeley's *Alciphron* (in seven Dialogues) is the best, the other two apologetics being, Butler's *Analogy of Religion* (1736), and Paley's *Evidences* (1794).

In *Alciphron* (Dialogue IV) Berkeley successfully tries to prove the existence of God through dialogues or discussions tactfully arranged between Alciphron, Euphranor, Crito and Lysicles.

The discussions take place at the house of Crito. He is a friend of Euphranor. Crito acts as umpire in the conversations but he also takes part in them. Crito takes part in all the Dialogues, except in Dialogue II where he is replaced by Lysicles, his young kinsman.

Dion reports the discussions without taking any part in them.

Alciphron is the chief interlocuter with Euphranor. Although both Alciphron and Euphranor are the main speakers

* The gist of the paper was published in the *Proceedings of the Indian Philosophical Congress* (Alwayee) December 1976.

in discussions, the book is named after the former and it is entitled *Alciphron*.

Alciphron has had the training in law and he is noted for proving the "denial of God".

Euphranor is a farmer but he has been through the university. Fortunately even after leaving the university, he continued his habits of study. Euphranor stands for proving God's existence.

Berkeley, the tactician, arranges the entire dialogues in *Alciphron*, but he keeps himself in the background. Two aspects of Berkeley's mind are represented respectively by Crito and Euphranor. Crito's knowledgeable, sarcastic and witty interventions express one side of Berkeley's mind ; Euphranor's simple and sincere arguments express other side of Berkeley's mind.

Alciphron, who confirms the denial of the existence of God, urges Euphranor to prove His existence. He, however, provides limitations within which Euphranor is to prove His existence. The limitations, as Alciphron says, are :

"First.....I am not to be persuaded by metaphysical arguments; such, for instance as are drawn from the idea of an all perfect being, or the absurdity of any infinite progression of causes. This sort of arguments I have always found dry and jejune; and, as they are not suited to my way of thinking, they may perhaps puzzle, but never will convince me. Secondly, I am not to be persuaded by the authority either of past or present ages, of mankind in general, or of particular wise men, all which passeth for little or nothing with a man of sound argument and free thought. Thirdly, all proofs drawn from utility or convenience are foreign to the purpose....."

Further as Alciphron says, :

".....I will limit myself also not to object, in the first place, from anything that may seem irregular or unaccountable in the works of nature, against a cause of infinite power and wisdom; because I already know the answer you would make, to wit, that no one can judge of the symmetry and use of the parts of an infinite machine, which are all relative to each other, and to the whole, without being able to comprehend the entire machine, or the whole universe. And, in the second place, I shall engage myself not to object against the justice and

providence of a supreme Being from the evil that befalls good men, and the prosperity which is often the portion of wicked men in this life; because I know that, instead of admitting this to be an objection against a Deity, you would make it an argument for a future state, in which there shall be such a distribution of rewards and punishments as may vindicate the divine attributes, and set all things right in the end. Now, these answers, though they should be admitted for good ones, are in truth no proofs of the being of God, but only solutions of certain difficulties which might be objected, supposing it already proved by proper arguments....." (*Alciphron*, Dialogue IV).

Euphranor finds himself perplexed to prove the existence of God on Alciphron's terms. Nevertheless he is very much determined to prove the existence of God. Euphranor is, therefore, interested to know from Alciphron the type of proof about God's existence that would satisfy him (*Alciphron*).

Alciphron says that he would be convinced about God's existence if He speaks to man just as he is convinced about the existence of another person, if he speaks to him. However he would not insist on God's speaking to men in their ears. It is enough if He speaks to men in their eyes, which make them to see the signs and take them to the signified objects. But God should speak to men in eyes throughout outward sensible signs.

So Alciphron addresses to Euphranor that if the latter does not make it plain to the former that He speaks to men by outward sensible signs the latter does nothing towards the proving of God's existence.

The point, therefore, is: Does God Himself speak everyday and in every place with the outward signs in the eyes of all men, asks Alciphron?

If the reply is in the affirmative, he would be convinced of His existence; but if the reply is in the negative, he would be sticking to his former opinion that He does not exist.

Euphranor's reply is that God speak to the eyes of men by the outward sensible signs every moment in every place and seeing the signs, the men think about the signified objects. He says:

".....the great Mover and the Author of Nature constantly explaineth Himself to the eyes of the men by the sensible intervention of arbitray signs, which have no similitude or connection with the things signified; so as, by compounding and disposing them, to suggest and exhibit an endless variety of objects, differing in nature, time, and place; thereby informing and directing men how to act with respect to things distant and future, as well as near and present. In consequence, I say, of your own sentiments and concessions, you have as much reason to think the Universal Agent or God speaks to your eyes, as you can have for thinking any particular person speaks to your ears" (*Alciphron* Dia. IV).

Granted that God's speaks through outward signs in the eyes of men, just as one man speaks through certain sound in the ears of another of man. Thus Berkeley through Euphranor succeeds in proving the existence of God on *Alciphron* terms, just as he succeeds in proving that a man exists, because he is heard by some one to whom he speaks. But the question is: how do the signs which we see suggest the signified objects? Berkeley, in *Alciphron*¹ says that signs suggest the objects, just as the words suggest their meanings. But the acceptance of this would imply that the relationships of the words and their meanings, being arbitrarily fixed by the human beings, may differ from country to country and therefore there may not be a possibility of universal language; on the otherhand the relationships between the signs and their signified objects are contingent or arbitrary, but as these relationships have been affected by God, they are same everywhere, and so Berkeleian theory hints at universal language. Berkeley is not worried in accepting the distinction between ordinary language of human beings and universal or Divine language of God. Rather he openly accepts that visual experience is a Divine language and it is universal.² What is more is that Berkeley insists that ever since we are born in this world we learn this Divine language and we continue learning this language till we die. Therefore

1. George Berkeley—*Alciphron*, Jessop and Luce Edition, Vol. III. p. 154.

2. George Berkeley—*A new Theory of Vision*, S. 147; *Vindication* S. 38.

there is Divine communion between God and human activities, which lasts so long as we last. In "Him we live, and move, and have our being" is not merely an empty line composed of various words for Berkeley but it is a topic of thesis, on which Berkeley had ardent faith through out his life.

It would be useful to point out how Berkeley's argument for the existence of God is related to the three traditional arguments for God's existence, eg. Cosmological, Ontological and Theological.

1. Berkeley leaves little room for the Cosmological Argument as found in St. Thomas of the eighteenth century metaphysicians, for it is based on categories of substance and cause, and is thus irrelevant to Berkeley's Cosmology.

2. As to the Ontological Argument of St. Anselm and later on clarified by Descartes, Berkeley is clearly saying, "Consider those things in your experience where by you are able to keep alive day to day and hour to hour without ceasing : and now behold the work of your Creator. "He does not say, "Beheld your Creator". we must distinguish between Nature and Naturans and Natura Naturata. The works we behold ; the Creator we do not. This makes the Berkeleian New Ontological Argument for God's existence, purposive but it remains different in form from that of St. Anselm. Berkeley firmly believed that all the being of God that can be present to us is always present whenever wherever we look, even if look is taken both in literal and metaphorical sense.

3. The Berkeleian New argument for God's existence looks like Teleological Argument. Berkeley points out that the works of God which we see are providentially ordered for us and not by us. Here is the Teleological Argument stripped of the encumbrances of substance, artificer and artifact.

Thus Berkeley's New Argument for God's existence leaves very little scope for Cosmological Argument.

Berkeley's Argument for God's existence, however, is like Ontological Argument in intention and not in 'form'.

Finally Berkeley's Argument for God's existence is very near to Teleological Argument.

Tactile Error

Tactile error is trivial and inconspicuous,¹ one instance of this error is found in a seriously mutilated organism say in the phenomenon of phantom limb

The phenomenon of phantom limb means that a victim whose arm or leg or any part of the organism has been amputated feels that it is there.

Now it is a common practise in any country that the surgeons do drastic amputations on the victims of accidents and war casualties and they are nearly always successful. In some cases the surgeons advise them to use crutches.

It is, therefore, very difficult to think that the patients or victims do have phantom limbs. But perhaps in a seriously mutilated organism there may be phantom limbs or there is phantom limb. The discussion concerns a case, which produces phantom limb.

Therefore, it can be supposed that if a person, whose limb, say an arm or leg has been amputated, he may feel that it is there. The person is, therefore, in error or illusion. And Professor A. D. Ritchie is perhaps right in thinking that it is a tactile error, for victim's tactile experience (for the missing arm or leg) is variable, unreliable and uncorroborated by his friends,

1(a) "There are haptic illusions, but normally they are trivial and inconspicuous. The 'phantom limb' illusion of those who have had a leg or arm amputated is inconspicuous and far from trivial, but is found only in a seriously mutilated organism"—Professor A.D. Ritchie's *Studies in the History and Methods of Sciences*, 1958, p 211.

(b) Professor A.J. Ayer regards the phenomenon of phantom limb a case of complete hallucination (*The Foundations of Empirical Knowledge*, 1963, p. 3).

while victim's visual experience (of his having no arm or leg) is constant, reliable and corroborated by his friends.

This phenomenon presents the following difficulties :

1. So far as the victim of the phantom limb is concerned, he knows that his tactile experience is uncorroborated by his visual experience
2. So far as the victim's friends are concerned, they corroborate the victim's visual experience of missing arm or leg but they are unable to corroborate to victim's tactile experience of missing arm or leg as present.

Such being the nature of the phenomenon of phantom limb, whatever little study this phenomenon may provide, this is possible only from the Internal View². This view roughly means that an observer in terms of his own experiences, past and present and he himself discovers his error and corrects it in the light of his own further and fuller experiences. This, however, does not mean that he does not take help from others. This only means that his experience should, in principle, corroborate with the experiences of others. In this connection it is not out of place to mention that Chessden's operation for congenital cataract of both eyes on a boy of 13 years of age, during Berkeley's days,³ confirms the patient's corroboration with surgeon and we get the first hand account of the patient corroborating with the surgeon and his second hand account. That could happen again any time now.

The victim's tactile experience of missing arm or leg as present should, therefore, be studied from victim's point of view. If this is done, we can say that the victim is not in error, since the victim, by comparing his tactile experience and visual experience⁴, learns that there is no leg or arm in front of him

2 Professor A.D. Ritchie explains the Direct Method or the Internal View or the Berkelian View in his work *George Berkeley A Reappraisal* 1967, pp 44-49 (Manchester University Press).

3 George Berkeley's *Theory of Vindication* (ss 70-71).

4 Dr. G.E. Davie in his preface to Prof. A.D. Ritchie's *George Berkeley A Reappraisal* (1967) says as follows :

"Experience does not just consist in simultaneously seeing and tactually feeling things; it consist equally in that control of attention which is required to compare the intimations of sight with those of touch, noting their agreements and disagreements" (p, xiii).

and he knows the truth. But occasionally he may forget what he has learnt previously and then he may be in error. His error, however, is temporary or momentary, for he soon realizes, by comparing his tactile experience and visual experience, that his missing arm or leg is really missing and gets over his error and knows truth⁵.

The victim's tactile error in respect of his phantom limb is comparable with mirror puzzle. If a person is accustomed to using a room with a mirror across the whole of one wall (as often in hotels and restaurants), he generally makes no error, because he knows that the objects seen in the mirror are tangible objects behind him and not tangible objects in front of him; in front of him there is nothing except mirror. But occasionally he may forget what he has learnt and he may even walk into mirror and he is in error and the experience seems very like tactile error. This situation is comparable to that of a man with a phantom limb or perhaps even to that of a man with no phantom limb.

Thus the phenomenon of phantom limb hardly proves the existence of a tactile error.

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5. In *A New Theory of Vision* (1709) Berkeley establishes his major thesis that although the data of sight and the data of touch are different and distinct, nevertheless they happen to be so related as to supplement one another's cognitive deficiencies.

ERRATA

Page No	Line	Details
111	6	<i>feels</i> for <i>feis</i>
Do	7	<i>practice</i> for <i>practise</i>
Do	20	<i>of</i> for <i>for</i>
Do	FN(1 a) L-3	<i>inconspicuous</i> for <i>inconspious</i>
Do	FN(1 b) L-1	<i>regards</i> for <i>regard</i>
112	14	After 'an' add ' <i>observer</i> '
Do	FN (2) L-2	<i>Berkeleian</i> for <i>Berkelian</i>
Do	FN(L) L-4	<i>Consists</i> for <i>coosist</i>

Is Vision A Language* ?

Berkeley in his *Works on*¹ *Vision* thinks that vision is a language like any language, say, English.

The English language begins with arbitrarily fixed twenty-six letters and proceeds on via words to a sentence or sentences. Two or more letters² are arbitrarily selected to make up a word. A few words are arranged to make up a sentence according to arbitrary rules framed by the grammarians. A sentence contains a few words which stand for objects but rest of the words in a sentence are from amongst the prepositions, conjunctions, attributes, articles, etc. which do not stand for objects, nevertheless they express relations, combinations, qualities, definiteness or indefiniteness, etc. of the words which stand for objects.

Let me take two sentences to illustrate my points:

In the sentence No. 1 "The mango is sweet" the word 'mango' stands for the object of the same name; the word 'the' is an article used to make the word 'mango' definite; the word 'sweet' expresses the quality of the word 'mango' standing for the object of that name; the word 'is' connects the words 'mango' with its quality 'sweet'.

In the sentence No. 2 "The glass is on the table", the word 'glass' stands for the 'object glass', the word 'table' stands

* The gist of the paper was published in the Proceedings of the Indian Philosophical Congress, IIT Kanpur, 1972.

1. Berkeley's three *Works on Vision* : (a) *An Essay towards a New Theory of Vision* (1709) : (b) *Alciphron* Dia. IV (1732); and (c) *The Theory of Vision, Vindicated and Explained* (1733).
2. Only word i.e. 'a' is of one letter.

for the 'object table' and the 'two the' are definite articles, one specifying the definiteness of the 'glass' and the other specifying the definiteness of the table; the word 'on' is a preposition speaking the relationships between the two words 'glass' and 'table' standing for two distinct objects and the word 'is' connects the word 'glass' and 'table.'

The words of a sentence which do not suggest objects are 'extra words'. The 'extra words' are used to make the intention of a speaker regarding objects clearer to those who hear him.

In the sentence No. 1 except the word 'mango' which stands for the object of the same name all other words are extra words, and in the sentence No. 2 except only two words 'glass' and 'table' which stand for objects of the same names all other words are extra words.

Practical minded Berkeley thinks that only such words, which stand for the objects,³ are the main part of English language. The linguists arbitrarily fix which words stand for which objects.

However, when we hear a word⁴ from some one and hence we perceive that word, we do not know the object for which the word stands since we do not know their connections.

Only after repeatedly perceiving a word we learn to associate it with the object. It is only then that when we perceive a word we perceive the object connected with that word. A Chinese,⁵ who hears a word 'tree' or 'man' for the first time, does not know the objects signified by each one of these words. He is, however, able to say about the object signified by the word 'man' or 'tree', only after some practice or learning. Thus which words would signify which objects depend upon our learning the habitual connections between them.⁶

Any way when we hear the words we almost ignore them and immediately pass on to the objects suggested by them because our primary interest lies not in the former but in the

3. NTV S. S. 140—3.

4. *Alciphron*, Dia IV S.6. NTV S 51.

5. *Alciphron*, Dia IV S. II.

6. *P.C.* No. 225.

latter.⁷ Every one knows that the words 'stones' and 'sticks' will not hurt us⁸ and so we do not pay heed to them but every one knows that the objects 'stones' and 'sticks' suggested by the words of the same names will break our bones and hence our primary interest lies in the objects 'stones' and 'sticks'. This is the reason why Pavlov's dog is more interested in the 'food than in the 'sound of the bell' and a porter is more interested in the 'feel of the trunks' than in 'their looks.'

On the model of English language Berkeley fashions his visual language. Berkeley substitutes 'signs' for 'words' 'significate objects' for 'objects' and 'Author of Nature' for 'Jaguists, and these substitutions help him to arrive at his theory of visual language.

The visual language is the language of the Author of Nature⁹. The Author of Nature arbitrarily associates the signs with the significate objects' e.g. the visible sign of river is associated with the significate object, river, the visible sign of mountain is associated with the significate object, mountain.

The Author of Nature speaks in our eyes certain signs and so we see them.

After repeatedly perceiving the signs we learn to associate them with the significate objects. This learning starts since the time of our birth¹⁰ in this world. Only after learning the relationships between the signs and the significate objects we can know which signs signify which objects.

Anyway we take no notice of the signs for they are unnecessary for our existence and we primarily attend on to the significate objects for they are very essential for our existence. So whenever we see signs, say, of river, mountain, etc. we take no notice of them because they are unnecessary for our existence and we primarily attend on to the significate objects river, mountain etc. because they affect our existence. Berkeley says as follows:—

7. NTV S. 59

8. Colin Murray Turbayne's *Berkeley's Works on Vision*. Editor's Introduction, p. XXXV.

9. NTV S. 147; *Alciphron*, Dia IV, SS.10-11; TVV S. 38.

10. NTV S. 144.

“..... signs, being little considered in themselves, or for their own sake,..... the mind often overlooks them, so as to carry its attention immediately on to the things signified...”

Alciphron, IV Dia, S. 12)

However, the ordinary language, like English differs from the visual language. As the ordinary language is the arbitrary relationships between the words and the objects fixed by the linguists, this language is artificial, but as the visual language is the arbitrary relationships between the signs and the significate objects fixed by the Author of Nature¹¹, this language is natural. Hence whereas in the case of ordinary language, like English the same word may not stand for the same object for all men all over the world, in the case of visual language the same sign stands for the same significate object for all men all over the world. Berkeley, therefore, concludes that the ordinary language like English is not universal but the visual language is universal.

11 *NTVS* 152; *TVV* S. 40.

What Is George Berkeley's Theory Of Vision* ?

What is Berkeley's theory of vision ? Berkeley does not give any precise definition of his theory of vision. He merely throws out certain hints in *An Essay towards a New Theory of Vision*¹ (1709), *The Principles* (1710), *Alciphron* (1732, Dia IV) and *The Visual Language* (1733) to work out his theory of vision. Also the modern writers² on Berkeley do not bring out his theory of vision, and for their special purposes in studying Berkeley, they need not do this.

I have, therefore, tried to work out Berkeley's theory of vision keeping in view Berkeley's texts.

A tentative definition of Berkeley's theory of vision is that vision immediately sees its primary or proper objects³ and through them the vision attends on to its improper or secondary objects. Now the proper objects of vision are the visible or

*The gist of the paper was published in the Proceedings of the Indian Philosophical Congress, Simla, 1973.

1. For Berkeley's *An Essay towards a New Theory of Vision* (1709) a short title *Essay on Vision* (1709) has been used; for his 'new theory of vision' a short title 'theory of vision' has been used. Berkeley's theory of vision is "new" in the sense that it is different from the theories of his contemporaries.
2. A.C. Fraser, A.A. Luce, T.E. Jessop, G.J. Warnock, D.M. Armstrong, Colin Murray Turbayne, A.D. Ritchie, etc. are some of the important modern writers on Berkeley.
3. The proper objects, says Aristotle, are the objects which are perceived by that sense organs, whose objects they are (*De Anima* 418 a, 423 b). Berkeley uses this term in the Aristotelian sense without mentioning the name of Aristotle.

ostensive⁴ objects and they are in the mind; the improper or secondary objects of vision are the proper objects of touch, these are suggested or tangible objects which exist outside the mind in the outer space and are perceived through touching⁵

The above terminologies, being made clearer, Berkeley's theory of vision may be defined as follows : the vision primarily and immediately sees the visible⁶ or ostensive objects in the mind and through their intervention the vision attends on to its secondary objects, which are outside the mind and which are the primary or proper objects of touch, and therefore they are not perceived by the eye but are suggested by the eye. Berkeley says :

"...there are two sorts of objects apprehended by the eye, the one primarily and immediately, the other secondarily and by intervention of the former. Those of the first sort neither are, nor appear to be, without the mind, or at any distance off...Whenever we say an object is at a distance... we must always mean it of the latter sort, which properly belong to the touch, and are not so truly perceived as suggested by the eye..." *Essay on Vision* (S. 50).

Berkeley confirms in the passage quoted below that the proper or immediate objects of a sense, say vision suggest the objects of other sense, say touch.

"Beside things properly and immediately perceived by any sense, there may be also other things suggested to the mind by means of those proper and immediate objects" (*The Visual Language* S. 9).

But how is it so ? Berkeley says that the visible objects suggest tangible objects just as words⁷ suggest objects. We learn the associations between words and objects and because of

4. Colin Murray Turbayne—*Berkeley's Words on Vision* (1963, Editor's Commentary, p. IX).

5. Berkeley—*Essay on Vision* (S. 82).

6. Berkeley's visible objects are pictures and not images. The images, are formed on the tangible retina by the tangible rays (*Essay on Vision*, S. 117; *The Visual Language* S. 57).

7. Berkeley—*Essay on Vision*, S. 77.

which we say particular words suggest particular objects. Similarly we learn the associations between visible objects and tangible objects and because of which we say particular visible objects suggest particular tangible objects. This learning, says Berkeley, starts from the time of our birth and we continue learning⁸ to see the visible or ostensive objects—in the beginning we see them quite vaguely but in course of time we learn to see the visible or ostensive objects, their shapes, sizes, positions, contours, etc. clearly and distinctly and we also learn that the visible objects are related to the tangible objects by habit and it is because of learning that we say that the particular visible objects suggest the particular tangible objects.⁹

But if the proper objects of vision (the visible or ostensive objects) at the level of eye suggest the tangible objects in the outer space, why is it, then, that while looking at the objects in distant space, we overlook the proper and immediate objects of sight and attend on to the signified or tangible objects, which according to Berkeley, are never seen but are only suggested by means of the proper objects of vision? Berkeley's reply is that, as the transition from the proper objects of vision to the tangible object is swift and sudden, we overlook the visible objects and attends on to the tangible objects in the outer space and we think that we see the tangible objects in distant space or we have direct access over the tangible or signified objects. Berkeley says :

"...that men, not resting in, but overlooking the immediate and proper objects of sight, as in their own nature of small moment, carry their attention onward to the very thing signified, and talk as if they saw the secondary objects? which, in truth and strictness, are not seen, but only suggested and apprehended by means of the proper objects of sight, which alone are seen" (*Alciphron* Dia. IV S. 12).

Besides the above reasons for overlooking the proper objects of vision, which, alone are seen, and for attending on to the tangible objects, which are signified or suggested by the

8. Berkeley—*Essay on Vision* (S. 144).

9. *Ibid.* S. 99.

immediate and proper objects of vision, Berkeley offers some explanation in the passage below :

"...bodies operating on our organs, by an immediate application, and the hurt or advantage arising there-from depending altogether on the tangible, and not at all on the visible, qualities of any object : This is a plain reason why those should be regarded by us much more than these:"
(*Essay on Vision* S. 59)

Berkeley, being convinced that the above reasons are satisfactory, gives his final conclusion in the following passage :

"...when we look at an object, the tangible figure and extension thereof are principally attended to; whilst there is small heed taken of the visible figure and magnitude, which, though more immediately perceived, do less concern us,..."
(*Essay on Vision* S. 59).

Berkeley's theory of vision may therefore, be finally stated as follows : we perceive through vision the visible or ostensive objects (the proper objects of vision) in the mind, which suggest the habitually related physical or tangible objects (the improper objects of vision but proper objects of touch) outside the mind in the outer space. We, however, overlook the visible objects and attend on to the tangible objects because the visible objects do not hurt us nor are they advantageous for us but the tangible objects hurt us or are advantageous for us, and this is why although we see the visible objects only, we think that we "see" the tangible objects at some distance.

The immediate comment which could be made of Berkeley's theory of vision is that his theory explains perception in terms of "observable objects"¹⁰, since according to his theory, vision immediately sees its proper objects (the visible or ostensive objects) and the proper objects of vision suggest to the vision its secondary objects, which are the tangible objects in the outer space. These secondary objects of the eye are not seen by the eye, they are suggested to the vision by its proper objects; the secondary objects of vision are the proper objects of touch and hence these are perceived through the sense of touch.

10. *Essay on Vision* S. 50.

Berkeley's theory of vision gives a criterion of truth and error. Truth lies in dismissing the visible or ostensive objects but in attending on to the tangible objects, because the former are not essential for our well-being or existence but the latter are essential for our well-being or existence; and error lies in putting excessive reliance on visible or ostensive objects but in neglecting the tangible objects because the former are not essential for our well-being or existence, but the latter are essential for our well-being or existence. The test of truth and error, which is hinted at, is a biological one, since observers, being interested by nature in their well-being or existence, may usually neglect the visible objects, which do not contribute to their well-being or existence but they must necessarily attend on to the tangible objects, with a view to avoiding them if they are injurious for their existence and get them if they are conducive for their existence. The test is, also, a pragmatic one in the sense that the tangible objects are attended to and the visible objects are avoided because the former are useful, in our practical life¹¹ but the latter are not useful in our practical life.

The cautious and careful observer, using Berkeley's theory of vision, has very little chance of being deceived in any normal perceptual situation. And supposing if one accidentally falls into error as in seeing a straight stick partially immersed in water as bent¹² or in any such error, one can get out of error and attain truth by dismissing the visible or ostensive object and by attending upon real¹³ or tangible object.

Berkeley's theory of vision, however, raises a controversial issue: Is Berkeley an immaterialist or a semi-immaterialist? Berkeley is clearly an immaterialist in his *Principles* (1710).

Berkeley began writing his *Principles* in 1708 decidedly with a motive of establishing his immaterialism. But while he was

11. A.D. Ritchie—*George Berkeley: A Reappraisal* (1967, G.E. Davie's Preface, pp. IX—X)

12. Berkeley—*Three Dialogues* (Luce and Jessop Edition, Vol. II, 1949, p. 238.)

13. Professor G. Revesz—*The Human Hand* (John Cohen's Eng. Trans. 1958, p. 20.)

writing this book it appeared to him that there is some difficulty in establishing immaterialism. Berkeley says:

"But for the fuller clearing of this point, it may be worth while to consider, how it is that we perceive distance and things placed at a distance by sight. For that we should in truth see external space, and bodies actually existing in it, some nearer, others farther off, seems to carry with it some opposition to what has been said, of their existing no where without the mind." (*The Principles* S. 43).

"The consideration of this difficulty" coming in the way of establishment of immaterialism, as Berkeley admits in the *Principles* (S. 43) gave birth to his *Essay on Vision*. Berkeley, therefore, temporarily abandoned writing his *Principles*. He first finished his *Essay on Vision* (1709) and then he finished his *Principles* (1710).

But the point is, did Berkeley solve the difficulty coming in the way of establishment of immaterialism? Perhaps not ! He puts down the following answer of the above difficulty in the *Principles* (S. 43), which was subsequently discussed and incorporated in his *Essay on Vision*.

"...distance or outness is neither immediately of it self perceived by sight...but that it is only suggested to our thoughts, by certain visible ideas and sensations attending vision..."

This answer is no solution to the difficulty in the way of establishment of immaterialism. Hence Berkeley makes a fresh bid to solve this difficulty in his *Essay on Vision*. In this work he insists that vision immediately perceives its proper objects and these are in the mind ; the distance and outer objects are the improper objects of vision but proper objects of touch and these are suggested to the vision by its proper objects. In other words the distance and outer objects are the tangible objects outside the mind in the ambient space, the reader has been told.

On Berkeley's own admission that the "tangible objects" are outside the mind in the ambient space his reader is correct to regard him as a "materialist". This way of thinking, however, does not damage Berkeley's reputation as an author of *Esse est percipi*, since even now he can hold the view that

the visible objects exist, because they are immediately perceived, and the tangible objects exist, because they are perceived through suggestions by the immediate objects of vision. Berkeley, therefore, need not merely say that the distance and the outer objects are tangible objects but he must also say that when these tangible objects are perceived by grasping and touching, we do have non-visual experiences or tangible sensations in our mind, but the objects touched and grasped are physical objects¹⁴ and they do not obviously change into non-visual¹⁵ experiences: they remain outside the mind of the percipients but related to the bodies of the percipients.

Thus, Berkeley appears to be a semi-immaterialist in *Essay on Vision* because he admits that the objects of vision are in the mind but the "objects touched and grasped" are outside the mind in the ambient space. His *Essay on Vision* (1709), therefore, appears to be independent of his *Principles* (1710). Berkeley wrote *Principles* for the purposes of propaganda to de-popularize the very popular views of elderly Locke in *An Essay concerning Human Understanding* (1690). But Berkeley's *Essay on Vision* is a scientific work: his *Essay on Vision* could be clearly taken in line with his subsequent scientific *Works* as well as in line with the scientific *Works* of other philosophers of his days.

14. G.J. Warnock—*Berkeley* (1953, pp. 45 sqq).

15. D.M. Armstrong—*Berkeley's Theory of Vision* (1960, pp. 24-26).

An Introduction To George Berkeley's Moral Philosophy

George Berkeley had a plan in his mind and on paper too, to write some comprehensive work on Moral Philosophy. This is clear from the following :

Berkeley published his *Principles of Human Knowledge* in 1710. He described it as Part I.

Berkeley was to publish the *Principles Part II*. There are certain references for this in his *Note Books*¹, A and B.

Berkeley also points to Part II (of the *Principles*) in the *Principles* Part I, last line of Section 144 (first edition only). He promised about the *Principles Part II* in the Preface to the *Three Dialogues* (1713, and in the second edition of this work in 1725). He also mentioned about the contemplated *Principles Part II* in his letter to Leclerc² (1711).

The promised *Principles Part II* was to deal with what Berkeley called 'Moral Philosophy taken to include Metaphysics'. He was to discuss here "the distinction between corporeal and the mental, the nature of god, the freedom of man, the commonplaces of ethics, and apparently a nominalist logic of demonstration, arising out of the claim that 'Morality may be demonstrated as mixed Mathematics'³ (entry 755)."

*The gist of the paper was published in the Proceedings of the Indian Philosophical Congress, Gauhati, 1977.

1. *The Works on George Berkeley* Vol. I, *Philosophical Commentaries* Entries Nos. 508, 807, and, 878. Edited by A.A. Luce and T.E. Jessop, Nelson Edition, Edinburgh, 1944.
2. *The Works of George Berkeley*, Vol. II, Nelson Edition, Edinburgh, 1949. Editor's Introduction, p. 5.
3. *ibid* p. 5.

But the promised *Principles Part II* never came out. Berkeley explains the reason for this is his letter to Johnson, dated the 25th November 1729. The relevant passage from the letter is quoted below :

"As to the Second Part of my treatise concerning the *Principles of Human Knowledge*, the fact is that I had made a considerable progress in it; but the manuscript was lost about fourteen years ago, during my travels in Italy, and I never had leisure since to do so disagreeable a thing as writing twice on the same subject."⁴

Berkeley's reason for not writing the *Principles Part II* may be accepted. Certainly he was too busy in certain period of his life. Also it might have been disagreeable for him to write on the same subject twice.

Had Berkeley written his *Principles Part II*, he would have been a pioneer in the fields of Moral Philosophy as well. Since he did not write the *Principles Part II*, we must remain contented with a truncated system of Moral Philosophy, which he deals in his equally important book *Passive Obedience*.

Berkeley wrote *Passive Obedience* when he was hardly 27 or 28 years old. This small book proved a very popular treatise. Within a short period of two years Berkeley published it four times. Its first edition was published in 1712 in Dublin and simultaneously in London; its second edition was published in 1712 in London, and its third edition (corrected and enlarged) was published in 1713 in London.

Apparently Berkeley begins in this book with the Sensuous Egoism and gradually takes his readers on to the Theological Utilitarianism. Thus tactician Berkeley thought it more prudent to end with schocker than to begin with it.

There are apparently four stages in his moral theory. They are :

1. Sensuous Egoism.
2. Rational Egoism.
3. Utilitarianism.
4. Theological Utilitarianism.

4. *The Works of George Berkeley*, Vol. II, Nelson Edition, p. 282.

We would like to clarify the above four stages as follows:

1. *Sensuous Egoism*

This theory roughly means that each individual tries, to attain sensuous pleasure, and to avoid sensuous pain. This is because each individual thinks that sensuous pleasure is good, and sensuous pain is evil. This theory is egoistic because each individual, by nature, seeks attainment of his pleasure and avoidance of his pain. And since the pleasure that each individual tries to attain and the pain that he tries to avoid are both sensuous, this egoistic theory is also sensuous. Hence this moral theory is called the Sensuous Egoism. Berkeley says :

"At our first coming into the world, we are entirely guided by the impressions of sense; sensible pleasure being the infallible characteristic of present good, as pain is of evil⁵".

Berkeley's Sensuous Egoism roughly corresponds with the Psychological Hedonism of the Western thinkers, because they also think that each individual desires his own pleasure because it is good and he tries to avoid getting pain because it is bad. Berkeley's Sensuous Egoism also corresponds with Egoistic Hedonism of the Cārvakas because they also think that the goal of any individual life is to attain the maximum amount of pleasure in this life, avoiding pain as far as possible. A good life is a life of maximum pleasure. Each individual must, therefore, try to do that action which brings for him maximum of pleasure and minimum of pain. The Cārvakas' ethics is, therefore, an Egoistic Hedonism, because they say that the 'pleasure is the highest goal for each individual.'

2. *Rational Egoism*

Berkeley moves on to a bit higher moral theory. Now it is not the senses which guide the individual to attain immediate pleasure and avoid immediate pain. He recommends that the attainment of immediate pleasure or avoidance of immediate pain must be done on rational grounds. If the immediate pleasure that we are likely to get is to bring more pain in future we need not try to seek that pleasure, e.g. too much of eating, indeed, brings, more immediate pleasure but this is

5. Berkeley—*Passive Obedience*, 1712, S. 5.

also likely to bring some serious diseases in future, and so we must try to avoid too much of eating. On the otherhand if immediate pain is likely to bring more pleasure in the long run, we need not avoid such, pain, e.g., ascetic life is immediately very painful, but such life is very pleasant in the long run and so ascetic life is desirable. That Berkeley accepted the Rational Egoism is clear from the following passage:

"But, by degrees, as we grow up in our acquaintance with the nature of things, experience informs us that present good is afterwards oft attended with a greater evil; and, on the other side, that present evil is not less frequently the occasion of procuring to us a greater future good. Besides, as the nobler faculties of the human soul begin to display themselves, they discover to us goods far more excellent than those which affect the senses. Hence an alteration is wrought in our judgments; we no longer comply with the first solicitations of sense, but stay to consider the remote consequences of an action, what good may be hoped, or what evil feared from it, according to the wonted course of things. This obliges us frequently to overlook present mementary enjoyments, when they come in competition with greater or more lasting goods, though too far off or of too refined a nature, to affect our senses"⁶

Berkeley's Rational Egoism is similar to the Ethical Hedonism of the Western philosophers, because they also recommend preference of pleasure or pain on rational grounds. Further, Berkeley's Rational Egoism is similar to the Refined Egoism of the Cārvakas. Some Cārvakas do not advocate the life of gross sensual pleasures and instead they advocate the pursuit of more refined pleasures by cultivating, for example, 'the fine arts'.⁷

3. Utilitarianism:

At the third stage the individuals are no longer interested in obtaining their own happiness and in avoiding their own pains. Instead, each individual thinks that his own pleasure lies in the happiness of mankind in general, and his own pain lies in the unhappiness of mankind in general. They, therefore, think

6. George Berkeley—*Passive Obedience*, 1712, S. 5.

7. Vātsyāyana, the famous hedonist, accepts sixty four fine arts in his book *Kāma-Sūtra*.

that, only that action is good if it leads to the happiness of mankind in general, and it is bad if it does not lead to the happiness of mankind in general. Berkeley says:

"It is not therefore the private good of this or that man, nation, or age, but the general well-being of all men, of all nations, of all ages of the world⁸....."

Since Berkeley regards general good as the moral end, he is a utilitarian. In *A Discourse Addressed to Magistrates* he thinks 'general good of the mankind' as the criterion of moral truth. Berkeley's Utilitarianism is, however, different from the Utilitarianism⁹ of J. S. Mill and Jeremy Bentham. Mill and Bentham thought that our desire for the well-being of mankind is not in the context of the 'design of the Providence' but Berkeley thinks that this is so. Further, Berkeley's Utilitarianism is different from that of Butler. While Berkeley thinks that in desiring the well-being of mankind, we are moved by God, but Butler thinks that it is the 'conscience' which moves us to think of the well-being of mankind:

4. Theological Utilitarianism:

This moral theory means that we desire the 'well-being of mankind' because it is God's desire. God, as Berkeley thinks, has no desire of His own. If He has any desire, it is the desire of the well-being of His creatures.

It thus follows that there is corroboration between our desire for the well-being of mankind and God's desire for the well-being of His creatures. He says:

".....God enjoying in Himself all possible perfection, it follows that it is not His own good, but that of His creatures.¹⁰

But the crucial question that arises is: How do we desire the 'well-being of mankind? Berkeley answers this question saying that there may be two possible *methods* to desire the well-being of mankind. They are:

(i) ".....by obliging every one upon each particular occasion to consult the public good, and always to do that which

8. George Berkeley—*Passive Obedience*. 1912, S. 7.

9. Alasdair MacIntyre—*A Short History of Ethics*, London, 1966, Chapter 17.

10. George Berkeley—*Passive Obedience*, 1712, S. 7.

to him shall seem, in the present time and circumstances, most to conduce to it."¹¹

(ii) ".....by enjoining the observation of some determinate, established laws, which, if universally practised, have, from the nature of things, an essential fitness to procure the well-being of mankind;¹²...".

The method No. (i) is wrong for the following reasons:

(a) ".....the best men, for want of judgment, and the wisest, for want of knowing all the hidden circumstances and consequences of an action, may very often be at a loss.....to calculate the events of each particular action¹³...".

(b) ".....we can have no sure standard to which comparing the actions of another, we may pronounce them good or bad, virtues or vices¹⁴.....".

Berkeley, therefore, rejects method No. (i) for doing the well-being of mankind. He observes:

".....there can be no harmony or agreement between the actions of good men; no apparent steadiness or consistency of one man with himself, no adhering to principles; the best actions may be condemned, and the most villainous meet with applause. In a word, there ensues the most horrible confusion of vice and virtue, sin and duty, that can possibly be imagined¹⁵.....".

And instead, Berkeley concludes that the well-being of mankind is possible by the second method enumerated under (ii) above. His actual words are quoted below:

".....the great end to which God requires the concurrence of human actions must of necessity be carried on by the second method, proposed, namely the observation of certain, universal, determinate rules or moral precepts, which, in their own nature, have a necessary tendency to promote the well-being of the sum of mankind, taking in all nations and ages, from the beginning to the end of the world¹⁶.....".

11. George Berkeley—*Passive Obedience*. S. 8,

12. *Ibid* S. 8.

13. *Ibid* S. 9.

14. *Ibid* 9.

15. *Ibid* S. 10.

16. *Ibid* S. 10.

Thus Berkeley tactfully works out his doctrine of the Theological Utilitarianism, and discusses it in his *Passive Obedience* in some what greater detail. In *The Querist*, (1735-37) and *Siris* (1744) Berkeley asked people in general and Irishmen in particular to adopt this theoretical doctrine in action so as to make the life of their fellow-beings better and happier. He addresses the people, whether they are doctors or political leaders or economists or social reformers etc., to work for the betterment of the human life and happiness.

The Sign-Significate Theory of Perception*

In *A New Theory of Vision* (1709) Berkeley speaks of the sign-significate theory of perception. According to this theory we perceive a sign but it suggests to us that significate object with which the sign is associated because of habit or custom. Thus when we look at a table we perceive a sign of a table and this sign suggests to us a significate object, table, because the sign of the table is associated with the significate object table by habit or custom. A sign, as Berkeley thinks, suggests its significate object with which it is related because of habit or custom. However our primary interest does not lie with the sign and so we ignore the sign, say of a table; our primary interest, instead, lies with the significate object and so we principally attend¹ to the significate object, say table and this is the reason why we say we perceive the significate object (here table). Every one knows that the signs 'stones' and 'sticks' will not hurt us² and so we do not pay any heed to them but every one knows that the significate objects 'stones' and 'sticks' suggested by the signs of the same names will break our bones and hence we principally attend to them and we say that we perceive them. This is the reason why Pavlov's dog is more interested in the 'food' than in the 'sound of the bell' and a porter is more interested in the 'feel of the trunks' than in 'their looks'.

*The gist of the paper was published in the Proceedings of the Indian Philosophical Congress, Bhubeneshwar, 1981.

1. Berkeley—*A New Theory of Vision*, S. 59.

2. Colin Murray Turbayne, *Berkeley's Works on Vision*, Editor's Introduction, p. XXXV.

Berkeley talks mainly about the above sign-significate theory in respect of vision only; however he incidentally talks about the sign-significate theory in respect of the sense of hearing³ as well. Berkeley says that we perceive through the sense of hearing sound only but, he says that when we perceive sound, the sound suggests that significate object with which the sound is habitually related; if the sound perceived is habitually related to the coach, the sound suggests the coach, and if the sound is habitually related to some other object, the sound suggests that significate object. It must, however, be remembered that the 'sound' is a sign and the object suggested by the sound is a 'significate object'. But we are not primarily concerned with the 'sign' or sound and so we ignore it; we are, primarily concerned with the 'significate object' and so we attend to it. And this is the reason why we say that we hear a coach or any such 'significate object'.

But did Berkeley ever talk about the sign-significate theory in respect of other senses, say, touch, smell and taste? No, he did not, since there was no immediate need for him to do so. However, the sign-significate theory which Berkeley works out in respect of the sense of vision and the sense of hearing can be easily noticed in other senses as well.

One can notice Berkeley's sign-significate theory in respect of his theory of touch also. This is clear from the illustration of Molyneux's blind observer⁴ and from the illustration of Chesselnden's patient.⁵ I present below these two illustrations in support of my view.

Molyneux's blind observer, being blind from birth, learnt to distinguish (when he was blind) between a cube and a sphere by touch alone. This he did, as Berkeley thinks, because he was accustomed with the habitual relation of the touch sign of a cube and a significate object cube as also of the habitual relation of the touch sign of a sphere and a significate object sphere. Surprisingly when the observer got sight all of a sudden, he failed to distinguish between a cube and a sphere at first sight. The reason for not distinguishing between a

3. Berkeley—*A New Theory of Vision*, S. 46.

4. Berkeley—*Philosophical Commentaries* (Nelson Edition, No. 32).

5. Berkeley—*Vindication*, S. 71.

cube and a sphere at first sight, as Berkeley thinks, is because the observer was not accustomed with the habitual relation of of a visible sign of a cube and a significate object cube as also the habitual relation of a visible sign of a sphere and a significate object sphere. But in course of time Molyneux's observer (now not a blind observer) knew the customary relation of a cube and a significate object cube as also the customary relation of a visible sign of a sphere and a significate object sphere, and consequently, as Berkeley says, he distinguished between a cube and a sphere through vision alone.

This illustration proves as follows: (a) As Molyneux's observer (when he was blind) knew the distinctions between the tangible sign of a cube and the tangible sign of a sphere, he was able to distinguish between the significate object cube and the significate object sphere. (b) On immediate receipt of sight Molyneux's observer (now he is not blind) did not know the distinctions between the visible sign of a cube and the visible sign of a sphere; he was, therefore, unable to distinguish between the significate object cube and the significate object sphere. (c) When Molyneux's observer learnt to integrate the visible signs of a cube and a sphere with his previous experience of his tangible signs of a cube and a sphere, he was successful in distinguishing between the significate object cube and the significate object sphere by vision alone.

Now the question is: Should Molyneux's observer attend on to the distinctions between the signs (visible or tangible) of a cube and a sphere which are unnecessary, or should he attend on to the distinctions between the significate objects cube and sphere, which are primary? The reply is that Molyneux's observer would be wise if he attends on to the necessary distinctions between the significate objects cube and sphere and ignores the unnecessary distinctions between the signs of cube and sphere.

The illustration of Chesselden's patient further justifies that Berkeley's sign-significate theory is clearly noticed in the sense of touch. Chesselden's patient had cataract in both his eyes since his birth and therefore he had no visual experiences of the objects; and consequently he was unable to distinguish

between the objects through vision. It is, therefore, natural to suppose that Chesselden's patient relied on the sense of touch to distinguish between the objects placed before him. This means that by touching he perceived touch signs, which suggested to him those significate objects as habitually related to the touch signs. Fortunately after operation of cataract he got vision in both his eyes. But unfortunately at first sight he failed to distinguish between the objects placed before him because at first sight he was not accustomed with the habitual relations between the visible signs of the objects and their significate objects. But after a week or a fortnight he was able to distinguish between the objects which were placed before him by vision alone, and this clearly shows that in course of time he became accustomed with the habitual relations of the visible signs of the objects and their significate objects.

This illustration proves as follows: (a) Chesselden's patient (before the operation of cataract in his eyes) knew the distinctions between touch signs of various objects which helped him to know the distinctions of significate objects, habitually related to the signs. (b) On immediate receipt of sight (because of operation of cataract) Chesselden's patient did not know the distinctions between visible signs of various objects and consequently he did not know which visible sign is habitually related to which significate object and as such he failed to distinguish between the significate objects. (c) When Chesselden's patient (after operation) learnt to associate the visible signs of the objects, and the significate objects he was successful in distinguishing between the various significate objects by vision alone.

Now the question is: Should Chesselden's patient attend on to the distinctions between the signs (visible or tangible) of various objects or should he attend on to the various significate objects habitually related to the signs? The reply is that Chesselden's patient would be wise if he ignores the unnecessary distinctions between the signs and attend on to the necessary distinctions between the significate objects.

Following Berkeley, we can say off hand that through the sense of smell we can perceive odour which may suggest a significate object, that may be habitually related to odour.

However we ignore odour because it does not affect our existence and we concentrate on the significant object because it affects our life and existence and this is the reason why Berkeley says that we perceive the smelling object:

Further, through the sense of taste we perceive the sign plate, which may suggest any significant object habitually related to the sign. However, we ignore the sign because it does not affect our existence; what affects our existence is the significant object and hence we concentrate on it and this is the reason why Berkeley says that our sense of taste perceives the significant object.

Thus through each sense we perceive certain signs and after repeatedly perceiving the signs we learn to associate them with the significant objects. This learning starts since the time of our birth⁶ in this world. Only after learning the relationships between the signs and the significant objects we can know which signs signify which objects. Anyway we take no notice of the signs for they are unnecessary for our existence and we primarily attend on to the significant objects for they are very essential for our existence. So whenever we see or hear or smell signs of the objects we take no notice of them because they are unnecessary for our existence and we primarily attend on to the significant objects, because they affect our existence. Berkeley says as follows:

“.....signs, being little considered in themselves, or for their own sake, ... the mind often overlooks them, so as to carry its attention immediately on to the things signified?.....”

Thus Berkeley's sign-significant theory can be found at work in all the senses with which the human beings are endowed.

6. Berkeley—*A New Theory of Vision*, S. 144.

7. Berkeley—*Alciphron*, IV. Dialogue, S. 12,

George Berkeley-A Realist*

Berkeley's two books—*An Essay towards a New Theory of Vision* (1709) and *The Principles of Human Knowledge* (1710) are respectively his first and second major work. The story of completion of these *Works* is like this.

In 1709 Berkeley started writing his *Principles* with a view to establishing immaterialism. But hardly Berkeley had reached Section 43 of the *Principles*, he realized that there is some difficulty in the establishment of immaterialism. He says:

“..... how it is that we perceive distance and things placed at a distance by sight. For that we should in truth see external space, and bodies actually existing in it, some nearer, others farther off, seems to carry with it some opposition to what hath been said, of their existing no where without the mind. The consideration of this difficulty it was, that gave birth to my *Essay towards a new theory of Vision*”

Berkeley, therefore, temporarily postponed finishing or publishing the *Principles*. In the meanwhile he finished and Published his *Essay on Vision* in 1709. And for the solution of the difficulty noted in the Section 43 of the *Principles* “how it is that we perceive distance and things placed at distance by sight”, Berkeley tactfully establishes in his *Essay on Vision* that such objects are perceived through the corroboration and comparison of the senses of touch and vision.

Later on Berkeley completed and published his *Principles* (1710).

*The gist of the paper was published in the *Proceedings of the Indian Philosophical, Congress, Chandigarh, 1982.*

Thus Berkeley avoids a clash between his two major *Works*—*The Essay on Vision* and *The Principles*.

But Berkeley's critics think that there is a clash between these two books. They say that whereas his *Principles* establishes the thesis of immaterialism, his *Essay on Vision* establishes the thesis of behaviouristic materialism.

Without entering into the dispute whether or not there is a clash between Berkeley's these two *Works*, I intend to point out that Berkeley is a realist so far his *Essay on Vision* is concerned.

The point is, that if one subordinates Berkeley's *Essay on Vision* to the immaterialism of the *Principles*, he is turned into purveyor of paradoxes. On the other hand, if one gives pride of place to the *Essay on Vision* one turns him into a hard-headed realist. Also by giving important place to the *Essay on Vision* one sees that the doctrines of the *Principles* become meaningful.

In order to appreciate the realism of Berkeley, one must realize that his *Essay on Vision* does not expound an isolated world of visual sense-data. The value of *Essay on Vision* consists in realizing that experience, properly understood, does not consist in the sensations of one single sense, such as vision, but in the comparison and co-operation of the sensations of vision with those of touch.

The Essay on Vision is an attempt to establish that the visual reports about the world in abstraction from the tactual reports of the world are unintelligible and indeterminate information. In other word Berkeleian meaning of matter consists in the coherence of sight and touch.

A question will arise: Would not this interpretation of the *Essay on Vision* unduly neglect the immaterialism of the *Principles*? I do not think that Berkeley would be much troubled by this criticism. What Berkeley's argument of vision shows and is meant to show is the establishment of behaviouristic materialism, which accepts only the publicly observable object and refuses the notion of private experience. The troublesome distinction between 'private' and 'public' will not begin to be understood until one begins to analyse experiences of being

aware of seeing coloured things through one's eyes and of feeling hard or soft things through one's hands.

Another point which Berkeley's *Essay on Vision* brings into light is that although experience proper is the co-operation of sight and touch, yet it confers some independence on things we see and feel. "The table I now see and feel acquires for me a species of actually experienced independence, in the sense that it is simultaneously seen as external to my impalpable organ of feeling and felt as external to my invisible organs of sight¹".

In the *Essay on Vision* Berkeley is a realist, because he makes it quite clear that a geometrical diagram can be perceived not by vision alone but by the conscious comparison of vision and touch. What do we do with reference to the geometrical diagram before us? We actually attend to the shape of the diagram and neglect the colour. But visible shape cannot be carried through in terms of visual experience alone. It depends on a conscious comparison with the diagram as seen with the diagram as felt, e.g. tactual experience of drawing a figure. In attending to the shape and neglecting the colour we note that the visible object before us has a certain peculiar correspondence with the object as tangibly felt. In the absence of any comparison between vision and touch, visible shape becomes unsizeable. In this way Berkeley recovers the doctrine of abstraction, which is attacked in his later work the *Principles*.

In the *Essay on Vision* Berkeley is no longer a mere middle man between half-hearted empiricism of Locke and consistent-empiricism of youthful David Hume. Instead, Berkeley that emerges out of the *Essay on Vision* is a dualist because he thinks that the visible object is independent of the tangible object and vice-versa, and yet both of them, as he says, are co-operative and corroborative. Experience does not consist in simultaneously seeing and tactually feeling things. Instead, it consists in that control of attention which is required to compare the intimations of sight and those of touch noting their agreements and disagreements. Berkeley makes it quite clear that although the data of sight and the data of touch are externally and even acciden-

1. A.D. Ritchie--*George Berkeley: A Reappraisal*, Manchester University Press 1967, Preface, p. XI.

tally related, yet they are so arranged with respect to each other as to supplement one another's cognitive deficiencies. The visual data isolated from the tactual data are quite insufficient for the needs of science as well as for our intellectual life. This is why Berkeley claims that the data of our experience must be purposively adapted to the needs of human cognition.

According to Berkeley the distinction between the internal or first-party view of myself with the external or third-party view of myself is already there in one's own experience 'in the comparison between vision considered as colour experience and vision considered as directing of the tangible eye on the tangible counter part of the coloured thing.' If this distinction is properly worked out, the charge of solipsism would not stand against Berkeley.

Frankly speaking we see in Berkeley's *Essay on Vision* the key to all that is fundamental in the contemporary discussion on the 'sense-datum theories'.

THE IMPORTANT EVENTS OF GEORGE BERKELEY'S LIFE*

- 1685 George Berkeley was born on 12.3.1685 at Kilkenny in Ireland. George was the eldest son of William Berkeley of Thomastown. He was brought up at Dysert Castle on a bend of the River Nore, 2 miles from Thomastown.
- 1696 Berkeley joined Kilkenny College on 17.7.1696.
- 1699 Berkeley explored the Cave of Dunmore in July 1699.
- 1700 Berkeley joined Trinity College, Dublin (Ireland) on 21.3.1700. Here he studied Mathematics, Classics, Logic and Philosophy.
- 1702 Berkeley became scholar of the House in 1702.
- 1704 Berkeley was awarded B.A. degree by the Dublin University in 1704.
- 1707 Berkeley was awarded M.A. degree by the Dublin University in 1707.
- He was appointed a Junior Fellow in 1707.
- He read a paper entitled "*Of Infinities*" to the Dublin Philosophical Society on 19.11.1707.
- He was appointed Tutor in the Trinity College, Dublin.
- Berkeley came in contact with Sir John Percival, who later on became 1st Earl of Egmont in 1708.
- He preached his famous sermon *Immortality and Passive Obedience*".
- 1708 Berkeley wrote about nine hundred short philosophical notes during 1707 to 1708. (*Please see Introduction to Berkeley's Chief Works*).
- Berkeley became the Earl of Pembroke. He was Lord Lieutenant from April 1707 to November 1708.
- 1709 Berkeley published his *New Theory of Vision* (First Edition, 1709, Dublin).
- He was ordained Deacon on 19th February, 1709.
- He worked as a Librarian in the Trinity College, Dublin.
- 1710 Berkeley published his *Principles* (First Edition, 1710, Dublin).

*George Berkeley's *Works* Vol.IX, Nelson Edition, Edinburgh, 1957, pp. 143-6.

He was ordained priest.

He was Junior Dean (1710—11).

1712 Berkeley published his *Passive Obedience* (First Edition, 1712, Dublin and London). He was appointed Junior Greek Lecturer in the Dublin University in 1712.

1713 Berkeley published his *Three Dialogues between Hylas and Philonous* (First Edition, 1713, London).

He visited London in January 1713 for the first time.

Here he came in contact with Addison, Pope, Gay, Arbuthnot and Steele.

In June 1713 he visited Oxford for two months.

In October 1713 he visited Italy.

1714 Berkeley came back to London in July-August 1714. He stayed on in England for about 2 years.

1715 Berkeley returned to Dublin in February 1715.

1716 Berkeley's second Continental tour.

1720 Berkeley returned to London in the autumn of 1720. He lived in London for about a year. In his return journey from the Continent to London he wrote *De Motu*.

1721 Berkeley published his *De Motu* (First Edition, 1721, London).

He returned to Dublin.

He was awarded B.D. and D.D. degrees by the Dublin University. He was appointed Divinity Lecturer.

1722 Berkeley was appointed Senior Proctor.

He was appointed Deanery of Dromore. This appointment was later on cancelled.

Berkeley left Dublin for London.

Berkeley's private announcement of Bermuda scheme.

1723 Berkeley returned to Dublin. He was appointed Hebrew Lecturer.

1724 Berkeley resigned his job in the Trinity College.

He became Dean of Derry (4th May).

His public announcement of Bermuda scheme.

1726 The Parliament passed a grant of 20,000 Pounds for Berkeley's Bermuda scheme to start St. Paul's College at Bermuda.

1728 Berkeley married Anne Forster, the eldest daughter of Sir John Forster in August 1728.

In the first week of September 1728 Berkeley along with his wife and others sailed for America. In their journey they stayed on at various places.

1729 Berkeley and his party reached Newport in January 1729 and lived there for 2 years and 8 months. At Newport Berkeley spent his time in conducting study-circle, and in corresponding on philosophical problems with Samuel Johnson, the President of King's College, New York. Here he wrote *Alciphron*.

1731 Berkeley was informed by Walpole that the grant for his Bermuda scheme has been cancelled.

He spent 12 days in Rhode Island. While staying on in the Island he visited Harvard and preached in King's Chapel.

On the 21st September Berkeley left the Island for England. He reached London on the 30th October. In London he stayed on in the Green Street for nearly two and half years.

1732 Berkeley was appointed Deanery of Down but the appointment was opposed.

1733 Berkeley published his *Theory of Vision Vindicated and Explained* (1733, London).

1734 Berkeley published his *Analyst* (1733, Dublin and London).

He was appointed Bishop of Cloyne in January 1734.

He left London for Dublin in April 1734. He was consecrated in St. Paul's Church, Dublin on the 19th May, 1734.

1737 Berkeley attended the Parliament at Dublin and spoke against the "Blasters".

He established a spinning school at Cloyne a house of work for vagrants.

1739 Epidemics in 1739 and 1740 made Berkeley to plunge into relief works.

1741 Berkeley was offered the Vice-Chancellorship of Dublin University, which he refused.

1744 Berkeley wrote his *Siris*.

He declined the offer of Bishopric of Clogher.

- 1746 Berkeley visited Dublin in August 1746 for a short time.
- 1750 Berkeley and his family spent a week at Killarney.
- 1752 Berkeley visited Oxford to meet his son George there.
He took a house in Holywell Street. Berkeley entered at Christ Church there.
- 1753 Berkeley died on the 14th January 1753. He was buried in the Chapel of Christ Church.

THE CHIEF WORKS OF GEGRGE BERKELEY PUBLISHED DURING HIS LIFE-TIME*

1. *An Essay towards a New Theory of Vision*, 1709, Dublin
-Do- January or February 1710, Second Edition, Dubbin.
The Essay appended to Alciphron, 1732, London and Dublin.
-Do- 1732, Second Edition, London.
Thus *Essay* was published 5 times, *two times* independently and *three times* along with *Alciphron*.
2. *A Treatise Concerning the Principles of Human Knowledge*, 1710, Dublin.
The Principles (2nd Edition) along with the *Three Dialogues between Hylas and Philonous* (New Edition) in the same Volume 1734, London.
3. *Passive Obedience*, 1712, Dublin and London.
-Do- 1712, Second Edition London.
-Do- 1713, Third Edition, London.
4. *Three Dialogues between Hylas and Philonous*, 1713, London.
-Do- 1725, Second Edition, London.
-Do- in one Volume with the *Principles*, 1734.
5. *Essays in The Guardian*, 1713, London.
6. *De Motu* 1721, London.
-Do- in Berkeley's *Miscellany*, 1752
7. *Alciphron or the Minute Philosopher* (with *Essay*), 2 Vols. London; also 2 Vols, Dublin.
-Do- (with *Essay*) 1732, Second Edition, 2 Vols., London.
-Do- (without *Essay*) 1752, Third Edition, 1 Vol., London.

*Berkeley's *Works*, Vol. IX, Nelson Edition, Edinburgh, 1957, pp, 147-50.

8. *The Theory of Vision ... Vindicated and Explained*; 1733, London.
 9. *Analyst* 1734, Dublin; also London.
 10. *A Defence of Free-thinking*, 1735, Dublin; also London.
 11. *The Querist* (three Parts) 1735, 1736, 1737; Dublin; also London.
 - Do- Second Edition, 1750, Dublin.
 - Do- 1750, London.
 - Do- Fourth Edition, 1750, Dublin.
 - Do- Fifth Edition, 1750, Dublin.
 - Do- 1751, Glasgow.
 - Do- Second Edition, 1751, London.
 - Do- in Berkeley's *Miscellany* 1752.
 12. *Siris* 1744, Dublin.
 - Do- March 1744, London.
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 - Do- New Edition, 1747, London,
 13. *Directions for the Making and Using Tar-water in Dublin Journal*, May 8-12, 1744.
 14. *Further Directions for the Making and Using Tar-water in Gentleman's Magazine*, June, Vol. 14, p. 327, 1744, London.
 15. *A Letter to T ... P. Esq. on the Virtues of Tar-water*, July 1744, Dublin.
 - Do- July 1744, London.
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16. *On Tar Verse in Some copies of Siris* Second Edition 1744, Dublin.
17. *On 'Siris' and its Encmies in Gentleman's Magazine*, October 1744, Vol. 4, p. 559, London.
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20. *A Letter to Thomas Prior, Esq., Concerning the Usefulness of Tar-water in the Plague*, 1747, Dublin.
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THE CHIEF POSTHUMOUS PUBLICATIONS OF GEORGE BERKELEY*

1. *Of Infinites* (M.S. 1707) — It was S.P. Johnston, who first published it, in *Hermathena*, Dublin, Vol. II, 1901, pp. 190-5.
2. *Note Books B and A* (M.S. 1707-8) — It was A.C. Fraser, who first published these two Note Books under the title *Commonplace Book of Occasional Metaphysical Thoughts in Life and Letters of George Berkeley*, Oxford, 1871.
3. *Note Books B and A* (M.S. 1707-8) — A.A. Luce and T.E. Jessop published these two *Note Books* under the title *Philosophical Commentaries*, Edinburgh, 1944.
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*Berkeley's *Works*, Vol. IX, Nelson Editison, Edinburgh, 1957, pp. 150-1.

5. *Sermon on the revelation of Life and Immortality* (M.S. 1708) — It was A.C. Fraser, who first published it in *Life and Letters of George Berkeley*, Oxford 1871.
6. *Sermon Let your zeal be according to knowledge*—A.A. Luce was the first man to publish it in *Hermathena*, Dublin, Vol. XXII, 1932, pp. 16-28.
7. *Sermon on charity* (Apparently preached in Leghorn 1714) — It was A.C. Fraser who first published it in *Life and Letters of George Berkeley*, Oxford, 1871.
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9. *Journals of travels in Italy 1717-18.*— Its was A.C. Fraser who first published it in *Life and Letters of George Berkeley*, Oxford, 1871.
10. *Notes for sermons preached at Newport, Rhode Island, 1729-31.* Twelve, —It was A.C. Fraser who first published them in *Life and Letters of George Berkeley*, Oxford, 1871.
11. *Two Sermons on the mystry of godliness* (undated). Probably preached at Newport (1729-31). — J. Wild was the first man to publish it in his *George Berkeley*, Cambridge, 1936.
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15. *The Irish Patriot or Queries upon Queries* (1738) — J.M. Hone first published it in *The Times Library Supplement*, 13 March, 1930.
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1. Joseph Stock — *Berkeley's Works* 2 Vols. 1784, Dublin;
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 „ — Reprinted 3 Vols. 1820, London.
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2. G.N. Wright — *Berkeley's Works*, 2 Vols., 1843, London.
3. A.C. Fraser — Do 4 Vols., 1871, Oxford.
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4. G.Sampson Do 3 Vols., 1897-8. London
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5. A.A. Luce and T.E. Jessop, Do 9 Vols. 1944-57,
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